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ORIGINAL ARTICLES.

PRIMARY OR ACUTE CONFUSIONAL INSANITY.

Read in the Section on Neurology and Medical Jurisprudence at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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Fifteen years ago, Dr. E. C. Spitzka[1] described under the term "primary confusional insanity," (an approximation of the German title "Verwirrheit" applied to the same mental states) a form of insanity "which develops rapidly on a basis of cerebral exhaustion. Consciousness is blurred in parallelism with the conceptional disturbance and the patients on recovering have, as a rule, but very crude recollections of their condition. Its duration is variable, comprising weeks and months. The prognosis is, as a rule, as good as that of stuporous insanity, which condition it also resembles as to etiology; emotional shock, cerebral overstrain, exhausting diseases and excesses being the principal factors responsible for primary confusional insanity. The patients suffering from this psychosis, after a rapid rise of their symptoms during a period of incubation rarely exceeding a few days, present hallucinations and delusions of a varied and contradictory character. The delusions may resemble those of mania, and more often those of melancholia, but no emotional state is associated with them. The patients assert in the same breath that their property has been stolen and that they are going to take part in some State affair. There is a surface resemblance between the confusion of mania and that of acute confusional insanity. The confusion of mania is not the expression of a genuine confusional state, but of a disparity beween the ideational items and of the word channels through which they seek exit. That of acute confusional insanity is an expression of a true essential confusion of ideation."

Several years ago I employed[2] this designation in connection with an analysis of cases occurring in the literature. In 1889, in an article clearly suggested by Dr. Spitzka's work[3] on insanity, Dr. H. C. Wood[4] used the same term to designate this class of cases. Antecedent to Dr. Wood, Dr. H. N. Moyer[4] had testified to the existence of certain forms of insanity bearing this designation. The term was adopted from Dr. Wood by Dr. W. Osler[4] at this time, who employed it to designate the same class of cases. Dr. Conolly Norman[5] also employed the term to designate this class of cases, taking it from Spitzka.

Three years ago I reiterated an analogy made in 1888 between the psychoses produced by various causes of cerebral exhaustion while classifying them under this title. This psychosis has been carefully discussed by Dr. J. Ferguson, of Toronto, who is somewhat biased by a seeming analogy between typhomania and acute or primary confusional insanity. Confusion of the two psychoses is not infrequent, nor is it deserving of reproach; albeit typhomania is a furibund, not an exhaustional psychosis.

The features presented by acute or primary confusional insanity may be gleaned from the following case of varied etiology cited from those which have come under my observation.

Case 1.—A young man brought up on a farm was much given to the perusal of sensational literature. He was very superstitious and frequently expressed a fear of ghosts. The boys of the neighborhood becoming acquainted with his weakness devised a plan to frighten him with a pretended spectre at midnight. He always slept with a large revolver in easy reach. During the day the ball cartridges were replaced by blank cartridges and the weapon restored to its usual place. At midnight the victim of the practical joke was awakened by a seeming spectre which stealthily entered the room and stood with outstretched arms, muttering unintelligibly. The victim hurriedly grasped the revolver and sat upright in bed, dumb with fear. The ghost advanced a step; the muttering continued. When the young man, wrought up to almost a frenzy, drew the weapon and stammered, "If you are a man, I shall kill you; if you are a ghost, this won't hurt you," and fired. There was a quick motion of the shrouded arm and the bullet was thrown back, striking the headboard. A second time he took deliberate aim at the figure and fired. Again a motion as if, catching the bullet and it was thrown back upon the bed. He fired a third, a fourth, and a fifth shot, only to have the bullets hurled back with noiseless motion from the ghostly figure. Then for a brief moment he sat as if transfixed, gazing with mute bewilderment, when with a wild shriek of terror he fired the last blank cartridge and hurled the pistol at the ghost. When the pretended ghost revealed himself, the victim was found in a dead faint which gave way to an incoherent frenzy, accompanied with marked initial hallucinations of sight and hearing. He recovered after three months' treatment in an asylum. One of the planners of the joke became insane through remorse and exhibited the like symptoms, but also finally recovered.

Case 2.—A man 50 years old was admitted in a state of violence much resembling that of alcohol. The patient who had a brother insane, had been perfectly well up to a week prior to admission, when he was attacked by rheumatism involving the knees, ankles and wrists, accompanied by a high fever. The third day after the appearance of the fever the patient was exceedingly delirious. Home treatment was for a time pursued, but his violent attempts rendered transfer to an asylum necessary. On admission the patient had a temperature of 101°. His knees, ankles and wrists were swollen. Psychically he was incoherently agitated and presented hallucinations of taste, hearing and sight. The day after admission his temperature rose to 105°, his agitation increased, he being with difficulty kept in bed, desiring to get up continually and drive off a legion of devils pursuing him. He refused to take eggnog on the ground that it tasted and looked like blood. Within three days the patient became comparatively rational and by the end of the second week the mental symptoms had entirely disappeared. The patient soon began to improve physically and was finally discharged. He recovered four weeks after.

Case 3.—The patient had been in very good health up to about three months before the admission which occurred during the year 1874, when he was attacked by headaches for which, on the supposition of its being malarial, three grains of quinin were prescribed three times a day. After taking three doses of this the patient was seized by a violent

attack of incoherent frenzy, with marked hallucinations of hearing of a depressing type. There was considerable dimness of vision; these phenomena persisted for three months as the quinin was continued and the patient treated with morphine subcutaneously. On admission to the insane hospital, which was at length rendered necessary, the patient was in the condition already described and was placed under choral and hyoscyamus as a hypnotic, and conium to quiet motor excitement. Under this treatment the patient was in fit condition to be discharged within six weeks[6] after admission. He manifested, a day previous to discharge, some slight evidences of malaria, whereupon quinin was administered which had the effect of bringing on a fresh attack of frenzy with the same symptoms as previously. The quinin was stopped and the same treatment was instituted with equally good results.

Case 4.—A painter 40 years old became incoherently insane during his third attack of lead colic. He felt bees stinging him and saw them fly through the air at him. After three weeks home treatment he recovered.

Case 5.—A girl 6 years old was attacked by scarlet fever, which went through the early stages in the usual way. About the sixth day after the scarlet eruption appeared the temperature (104°) sank to 98° and the child became extremely restless and violent. She had been frightened by a Chinaman two weeks before the attack of scarlatina. She now complained that she saw him at the window with his hands outstretched to grasp her. This condition continued for two days when it gave way to an incoherent hallucinatory state, accompanied with great agitation. The patient recovered in a week.[7]

Case 6.—A woman 40 years old, who had been engaged in harassing litigation, was grossly insulted by a lawyer during an interview. She wandered away in a stupid state, but was picked up by a friend who took her home. She remained in this stupid state for thirty-six hours and then became incoherently hallucinated, visually and auditorially. Three weeks later she had fully recovered but retained a very confused recollection of her illness.

The phenomena presented by this psychosis bear a superficial resemblance to the episodiac excitement of paranoia as well as to the period of transformation. Both are attended by hallucinations and agitation, but in paranoia there is an underlying intellectual element which, together with the precedent history, serves for demarcation. The febrile disorders often set up a neurosis which serves secondarily to the acute confusional insanity as a basis for the develop- of paranoia. Such an association is, however, purely fortuitous. Acute disorders may expedite in degenerate subjects the development of paranoia after an acute confusional insanity, but this has no special relation to the succeeding psychosis since paranoia was simply hastened in its development, not created by the confusional insanity. This fact, however, led Westphal erroneously to classify acute confusional insanity with paranoia. Rosenbach has recently pointed out these resemblances in a very graphic manner. The temperature in typhomania and the furibund symptoms differentiate it from acute confusional insanity as well as the greater mental defect. Treatment consists in proper nutrition, quiet and relief of agitation. The prognosis is usually good.

A question has been raised as to the essential etiologic factor. Kraepelin,[8] who studied psychoses of this type most extensively, is of the opinion that to systemic nervous exhaustion, not to toxic elements, it is due. This is also the opinion of Moeli,[9] who in a case resultant from lead colic, claims that the exhaustion from the colic, not the lead poisoning, was the chief cause of the psychic symptoms. Binswanger[10] in discussing the psychosis as it supervenes on fever from brass poisoning in brass founders, inclines to Moeli's opinion.

As will be seen by the quotation from Spitzka, he regards the adynamia as the essential basic etiologic factor. This opinion of Spitzka has been adopted by Dr. H. C. Wood. Ferguson insists that toxic factors play a part in certain cases. This may be granted but they, as a rule, produce no symptoms differing from the cases developing on exhaustion from other causes. This adynamia is, as many of the older clinicians have shown, simply a nervous asthenia produced by various causes ranging from psychic to toxic. On it the whole group of adynamic psychoses designated as primary or acute confusional insanity develops. During fourteen years private and insane hospital practice in Chicago, I have observed 103 cases.

[1] Medical Gazette, 1880.
[2] Jour. of Nerv. and Men. Dis. Periscope, 1881 to 1886; Alienist and Neurologist, 1883-7. Neurological Review, 1886.
[3] Insanity: Its Classifications, Diagnosis and Treatment.
[4] Weekly Medical Review, 1880.
[5] Dublin Jour. of Med. Sc., 1890.
[6] Jour. of Nerv. and Men. Dis., 1881.
[7] St. Louis Clinical Record, 1881.
[8] Archiv f. Psych., 1881-6.
[9] Charite Annalen, 1883.
[10] Neurologisches Centralblatt, 1882.

SOME QUESTIONS OF RESPONSIBILITY IN OPIUM AND COCAIN INEBRIETY.

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Within a recent period the question of responsibility and accountability for conduct and acts of persons who are known as opium, cocain and other inebriates has been raised in courts, and referred to medical men to answer. The confusing character of the medical evidence offered suggests the need of a more careful study of some of the general facts common to these cases. So far, the contested cases have been disputed wills, strange criminal assaults, thefts and defalcations, and other crimes usually devoid of premeditation and ordinary judgment in the execution. The larger number of these cases have none of the symptoms of insanity as understood in courts and text-books. The prominent manias and delusions and eccentricities of talk and conduct are wanting. The opium cases in public are quiet, secretive, abstract and harmless. The cocain takers are talkative and excited, but equally shrinking and retiring. The other drug takers also avoid publicity, and when exposed seem dull, stupid and indifferent. Many of these persons retain their position in active life, and appear normal, attracting no special attention by acts or words.

The commonly accepted opinion, which is supported by many medical men, is that the use of narcotics daily is not incompatable with ordinary intelligence and average judgment; that it is possible to use such drugs for a long time and be mentally capable. Such views are not sustained by scientific examination of cases.

Practically, all uses of narcotics are the abnormal demands of brain centers for relief. Same condition of fatigue, degeneration, and departure from a normal state, is manifested by irritation, pain and suffering; this the narcotism of these drugs quiets. Later states of poisoning follow, from the derangement of cell nutrition and elimination of waste products, and the increasing chemical disturbance of the higher processes of tissue and cell growth. All narcotics by their paralyzing action on the sensitive

nerve centers, both poison, starve and exhaust them, and thus destroy the power of the higher centers to recognize the actual condition and relation of the surroundings.

This is practically insanity in its broadest sense. The brain is impaired, its delicate functional processes are lowered, its capacity of reasoning and of comparison is broken up, all sensation is deranged, and coördination becomes more and more difficult. Both theoretically and literally, the highest functional activities of the brain suffer most. The lower organic functions of digestion, nutrition and elimination show little sign of derangement in the early stages. The effect of a single dose of narcotic drugs is noted in the diminished sensitiveness to all impressions from both external and internal sources. The knowledge which sensation brings to the nerve centers is defective and misleading. Events and their relation are obscured and the capacity to discriminate is weakened or destroyed.

It is the masking and concealing of these derangements that makes them difficult to be understood. These drug-inebriates quickly become automatons, following an accustomed line of act and thought, and in this way seldom manifest their real condition. Later egatism and delusions become so prominent that the damaged brain is apparent. In a practical study of cases where this question of sanity and responsibility is brought into prominence, the facts of heredity, and the mental and physical condition of the person before drugs were used and the effect of those drugs on the mind are the essential facts to start from.

The following cases illustrate the influence of heredity in this problem: A. left a will which was contested. He was a business man of excellent judgment and much respected. For the past ten years he had used opium. No history could be obtained of the reasons for using opium. He had been quiet, secretive and reserved all his life, never showing any special interest in his family or friends, and avoiding company unless on business. The death of his wife seemed to deepen his secretiveness, for he would see no one but his confidential clerk, and through him execute orders and business transactions. The last years of his life he manifested alarm and intense anxiety at the nature and quality of the food served him. He would go to the kitchen and question the cook as to the method of preparing the food. There have been certain parts of the food especially sent to his table. He gave his property to a distant nephew and only a small part to his children. The heredity indicated a father who died in an insane asylum; a mother very eccentric who died in childbirth. Both grandparents were inebriates and mildly insane. Two uncles were epileptics; one aunt an imbecile, and several cousins feeble-minded and paranoiacs. From this heredity and history, with the unusual act of the will, his irresponsibility was decided.

B. was before the courts charged with bigamy. He came from a degenerate family, marked by hysteria and eccentrity on the female side, and inebriety, epilepsy and imbecility on the male side. Both parents were paranoiacs of alternate exaggerated and depressed emotions, in constant conflict with the surroundings and the persons they came in contact with. He had been an alcoholic and changed to opium. He was a commercial traveler for a brewery, and was feeble-minded in many respects. The act and his heredity and present condition pointed to irresponsibility, want of control and impaired consciousness of right and wrong.

In a study of the physical and mental condition of persons before opium was used, the following are selected as typical cases: C., a lawyer who was excessively egotistical and bold at times, then manifested unusual timidity and feebleness of character before the use of opium, became involved in a swindling scheme. He had been considered an unreliable enthusiast who joined all new schemes and theories that came up and deserted them as quickly. He was credulous, skeptical and suspicious, alternately. At one time he was intensely selfish and grasping; at another, he would be very generous and benevolent. This instability extended to all his mental and moral activities and became notorious. After some fever he began to use opium and became secretive and cautious. Delusions of neglect and persecution were followed by dishonest acts and arrest, with conviction and sentence to prison.

D. was an erratic, passionate merchant who was in constant difficulty with his customers, always having litigation to secure and preserve his rights. In his family he was harsh, overbearing and suspicious. He manifested constant fear and alarm of being cheated. For some unknown reason he became an opium inebriate, and two years later was convicted of incendiarism, burning a neighbor's property to keep it from being occupied by a supposed enemy.

In both of these cases the evidence clearly indicated a degree of insanity and degeneration before opium was used. The responsibility of both cases was an open question before opium was used, but after, it appeared to be a settled fact. How and to what degree the use of opium has broken up normal reason is the next essential inquiry. The cases vary so widely it is difficult to point out any particular class of symptoms common to all. The following case has attracted much attention.

E., an opium taker, proved to be a defaulter of a large amount. He had been an ambitious, energetic banker, who for many years overworked and neglected ordinary rules of health. He became wealthy, was temperate, honest, lived abstemiously and was considered a man of good judgment and highly respected. After a severe attack of the prevailing influenza, he began to use opium. A year later he showed marked change in his habits and manner. He was dull and stupid and seemed to have confused notions of many things where he was formerly clear and prompt. His temper became more irritable, and he was suspicious. Unusual fears were manifest to prevent his associates from robbing and taking advantage of the company. New books were opened and expert examinations made of accounts, and explanations demanded of all possible matters. This sharp espionage was continued for three years, becoming more offensive every year, when a board of directors made an examination of his own accounts finding a large defalcation. An attack of acute mania followed the exposure, and later imbecility and death.

F. was arrested for wrecking a train by placing obstructions on the track. He had been for years a reputable mechanic, and from the death of his wife and loss of his property, with illness, became an opium eater. He worked for the railroad, and was discharged, then gradually developed delusions of persecution. He grew secretive and suspicious and

talked to himself when alone. He wandered round the country in the daytime, coming in late at night, only working to get sufficient money to purchase opium. On the trial he could give no idea of his acts and conduct from the day before the act to two days later, and seemed not to realize the crime of which he was accused.

Delusions of injury by others are not uncommon. Thus a woman who used opium accused her physician of criminal assault. A business man asserted that he had signed a contract by threat and force of a partner; a husband asserted his wife had secreted stocks and bonds, and affirmed they were lost. When confined in an asylum, these delusions assumed the form of persecutions and efforts to keep them away and take their property from them.

In a medico-legal case, if the fact of using opium is established, it is necessary to make a thorough study of the history of the person. The facts of heredity will indicate a constitutional tendency and bias to certain general forms of degeneration. The facts of his history, before using opium, points to favoring causes and conditions that would most likely find relief in opium and narcotism. The exciting and predisposing causes which led to the first use of opium, and the effects on the conduct and character of the person, with the length of the addiction, are often the central facts of the case. Lastly, the act or crime committed, its possible motive, and the circumstances associated with it. From these facts the possibility and capacity to think and act sanely may be determined.

In all these cases two conditions are present: One, alteration of character and conduct; the other of enfeeblement and deficiency. The latter may be congenital and the normal state of the person. He may be through defect, disease, and other causes, mentally enfeebled and unstable, deficient in judgment and average reason. Opium will intensify and increase this condition, which may be far removed from imbecility and dementia; and yet it is clearly degeneration, and the power of recognition and discrimination of the relations of duty, obligation, and adjustment be wanting. This condition of lowered intelligence and morality, with reason and judgment below the plane of normal consciousness, is clearly irresponsibility. In the former case, where simply alteration of conduct and character are the most prominent symptoms, opium deepens and widens these changes.

These are some of the cases which pass unobserved through life, attracting no attention except among those intimate with them. When they commit crime, make strange contracts, ignore all claims of duty and obligation, make unreasonable wills, the various questions of mental soundness are raised. The use of opium, no matter for what purpose, is clear evidence of degeneration; not when taken at long or irregular intervals, but when used continuously. The activities of the brain are reduced and all the higher processes which control and regulate the affairs of life with judgment, prudence and restraint are lowered to an automatic level. As a result, such acts manifest this condition more than ideas. The gratification of the senses, regardless of consequences, grows more and more dominant. Indulgences in so-called pleasures are the leading motives, and considerations of family, laws, society, duty and obligation grow constantly feebler. He retrogrades back to lower levels, and yet in this dissolving process he may not have any of the more common signs of insanity and imbecility. Courts and legal methods of judgment may be unable to find evidence of irresponsibility; and yet it exists, not based on any class of symptoms, but on a general history and comparison of conduct and character.

This region of alteration of character, and the growth of the ego, with increasing feebleness of the higher function, cerebral activities, must be recognized and studied. While the case may remain in this state for a long period, it is liable any time to pass into dementia or general paralysis, and the longer opium is used the more pronounced the organic changes become. Every case must be judged by itself. The question of responsibility is one of degree. The use of opium has put the man in an abnormal condition in which his mental faculties are crippled. To what extent, and how far he has become disabled and made incompetent to think and act wisely, are the questions. The general principles which govern these cases apply to all other narcotic addictions.

The physiologic action of cocain resembles alcohol, in first exaggerating the mental functions, then depressing them. Opium reduces the functional activity of the brain centers and cocain exalts them. In one case a form of melancholy follows; in the other, delirium and mania comes on. In both, the lowering of the higher brain centers is followed by the rise of the lower egoistic impulses. The exaltation from cocain becomes delirium after a time, with cell irritation, fatigue, confusion and exhaustion. The depression from this temporary elevation and exaggeration of cell activity demands relief in the repetition of the drug, and after a time organic changes begin, with degeneration and impairment. The cocain taker more often commits crime against persons than property. Such crime will be fitful, impulsive and lack premeditation and motive. The cases that have been contested have been assaults, thefts, and attempted injury of persons without cause. Several wills have been disputed where suicide followed the execution of the paper. Some cases have been kleptomaniacs, and most of the cocain takers have turned to alcohol and opium for relief. Hallucination and delusions are very common, but usually transient and recognizable by the person when the immediate effects of the drug pass off. The cocain inebriate will at times manifest a degree of mental clearness and superior judgment that is unusual, but this is simply masked delirium and soon ends in confusion and delusion. Ideas and conduct are delusional and transitory, and will not bear the test of examination and comparison. General paralysis begins with a period of cocain inebriety, and the treatment and removal of the cocain brings to light this disease. Cocain may be taken for some time without recognition in the changed character and habits of the case, but a careful inquiry will show a steady decline and debility of all the higher mental operations.

A., a physician who had used cocain secretly for two years, assaulted a stranger in his office. It appeared that he was laboring under the delusion that detectives were hunting for evidence against his character. B. ran away with a large amount of money belonging to the firm he was connected with. He was a secret cocain inebriate, and had delusions. C., a woman, used cocain and was a notorious klepto-

maniac, manifesting cunning and judgment in concealing her real condition.

As in opium cases, each one presents different phases and has to be judged by the facts peculiar to it. Crimes of such cases often come from concealed hallucinations, particularly of theatening voices. The act in its sudden impulsiveness indicates some condition of aural or visual disturbance. One very prominent symptom of mental derangement is loquaciousness, and uncertainty and indecisiveness of thought. Correspondence never comes to an end, one letter suggests another, and so on indefinitely. The same feature is noted in conversation; continuous, random, vague thoughts and opinions, all tinctured with delusions of vigor and strength, and boasting of what they have or can do.

The fact that cocain is used medico-legally is presumption of general brain debility and various degrees of irresponsibility. In a disputed case, the same thorough history should be obtained of the heredity, previous health and present condition as in opium cases. This, in connection with the fact that cocain used continuously rapidly develops mental confusion and intellectual disorders, making it impossible to understand the nature and character of the acts and conduct, would go far toward proving irresponsibility in a given case.

A number of drugs have recently come into medico-legal medicine in similar questions. It may be stated as a general fact that all narcotics or drugs which may possibly cause intoxication are poisons. The brain both functionally and in its organic structure is injured, its integrity is impaired. Hence any form of drug addiction is open to the suspicion and most reasonable certainty of lowered consciousness of right and wrong, and general incapacity of reason. These drugs are taken for their effects, which give relief in most cases. Alcohol and opium are the most prominent. Cocain, chloral, chloroform, ether, camphor, belladonna and others less prominent are used in the same way. The effects are intoxications or states of poisoning in which the brain is exalted, depressed, narcotized and changed, and precipitated into states of partial insanity.

The use of these drugs may be a symptom and point to some degeneration and arrested development, attended with irritation and exhaustion for which these drugs bring relief. In all cases they have no food element to build up the brain, but by irritation and depression break up and tear down the higher processes of cell and brain activity. When such cases come into court and the soundness and unsoundness of certain acts are to be examined, then these general facts appear and form the basis for a wider and more exhaustive study.

The medical witness should never try to draw dividing lines as to where mental health and disease join. He should assume justly that from certain causes certain effects are always to be expected. That continuous use of drugs for their effects is always injurious, and no one can be rational and sound who poisons his brain with narcotics. Also, that each case is a law to itself, and from the facts and conditions clear, general conclusions can be affirmed that will bear the test of examination and study. Forensically, the question of responsibility determines the measure of punishment, and here the judgment of the physician should be clear, independent and unbiased.

THE POST-ACTIVE TREATMENT OF NARCOTIC HABITUÉS.

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Very largely among the laity, and, to no small extent, in the profession, an opinion obtains that narcotic inebriety is a cureless disease. My experience, covering a quarter century and compassing the history and treatment of many hundred cases, has convinced me that this opinion is a mistaken one, and in two papers, "The Curability of Opium Addiction," *Journal of Inebriety*, 1885, and "The Curability of Narcotic Inebriety," *Cleveland Medical Journal*, 1893, cases were cited in proof.

Years ago, the opinion was advanced that 30 per cent. of proper cases, properly treated, resulted in permanent recovery. I am no less optimistic now than then, and when the value of a certain post-active régime in the treatment of the disease is fully appreciated, and is insisted on and persisted in as its importance demands, my optimism will assume more generous proportions, and a blot on the scutcheon of professional success along this line will be largely removed.

It is not surprising that this non-hopeful feeling concerning a continued good getting on after quitting a long-used narcotic should so largely be held. The common idea that the habitual user of opium, chloral or cocain is simply the victim of his own vicious indulgence, implies a damaged morale on the part of the patient that militates strongly against any lasting good from a strictly therapeutic endeavor. The somatic factor in causation being denied; the crippled condition being deemed due to impaired psychique rather than physique; and these unfortunates being looked upon as moral lepers, who, having knowingly "sown the wind" must "reap the whirlwind," that measure of sympathetic succor which would bring to them what the resources of modern medicine can surely extend is withheld them, and they are given over by their pessimistic commiserators to a bondage binding for life.

I have held and still hold that this largely prevalent idea as to the etiology of narcotic inebriety—in the immense majority of patients—among the better class (and I assert and insist upon well-marked class distinction in these cases) is a mistaken one, *vide* "The Ethics of Opium Habitués," two papers, *Brooklyn Medical Journal* and *Medical and Surgical Reporter*, 1888; that a physical necessity, not a moral obliquity, is the great genetic factor, and that a full recognition of this fact, in both active and post-active treatment of this disease is absolutely essential to a large and lasting success. And, *en passant*, it is a pleasure to express my belief that the trend of professional opinion is growing along this line, as regards both alcoholism and morphinism, the two forms of inebriety that to-day most menace private and public weal.

The advance of scientific medicine during the last half decade, in the treatment of the last-named neurosis, has been such as to warrant a statement in 1893 before the Pan-American Medical Congress that, at no previous time had it been so simple, so

satisfactory and so successful. Enlarged experience has not lessened this opinion; in fact, the modern and humane treatment of the morphin disease, which so specially attaches to the Mattison method, is securing increased and increasing recognition, appreciation and application; all of which I make bold to say—at the risk of being deemed an egotist—the merit of the method unquestionably deserves.

But while we have reason to felicitate ourselves on therapeutic progress in this field, touching the question of acute cure we are still face to face with the unsettled, because largely unsuccessful, question of what may be termed chronic cure. To the solving of this problem our best effort may well be directed, and it is the purpose of this paper to present certain facts, the outcome of an experience not small, and to commend such details of post-active treatment as will tend in most measure to secure a lasting success.

As stated in a paper, "Morphinism in Medical Men," presented this ASSOCIATION last year, the majority of those who honor me with their care belong to our profession. As fellow-members of a noble guild it is quite natural that we who have not fallen under the poppy blight should feel a more than common concern in their well-being; and, taking them as a class—though the same danger pertains to most ex-habitués—it may be said that three things imperil the permanence of their cure. They are overwork, rum and tobacco.

In laying special stress on these, it need scarcely be said that the full repair of all health infractions—brawn or brain—that stood in causative relation to the initial narcotic using, is a *sine qua non* in doing permanent good. But granting that full repair, and that nothing remains save the entail of a narcotic abuse, many cases present in which the risk of failure pertains to one or other or all of the three causes cited.

Regarding the first of these, overwork, one can easily understand why the varied and exacting demands of an active medical life should make it take first rank among causes effecting an untoward result. And in direct ratio to a premature resuming of the doctor's toil, is the peril of his again falling victim to the poppy need.

It may seem strange that a medical man, who, above all others, should know the disturbing effect of a long-used narcotic on functional well-being of mind and body, does not appreciate the danger of too soon resuming work. Such, however, is the fact. Of course, cases occur where, from conditions beyond control, despite a full realization of this risk it must needs be taken; but too often the lack of good judgment in not recognizing the great truth that a nervous system, battered and bruised for years by narcotic excess, will not in as many weeks or months regain its pristine status, is the main reason for failure in the good work—be it never so well begun. History has repeated itself so often along this line that I emphasize this danger, and warn against it with all the energy at my command.

Alcohol lessens greatly the hope of permanent cure. *No ex-narcotic habitué is safe who uses rum in any form.* The question of kind or quality—mistakenly held by some—is of no import. Pure or impure, beer or brandy, wine or whisky, the risk impends, for it is the alcohol that makes the mischief. Years ago that opinion was reached and each year has but added to this belief. And this prompts me to say that I think the use of alcoholic stimulants in the active treatment of narcotic inebriety is needless and dangerous. Needless, because success can be secured without them, and dangerous—doubly so—because they retard acute recovery and tend to create a need for continued taking which makes much less hopeful the outlook for continuous good getting on. I am well aware that the opposite idea, both in active and post-active treatment, is held by some—notably among Germans—but, guided by the lamp of my own experience, I am bound to assert my opinion absolutely and everlastingly.

Tobacco endangers recovery. This belief, though more recently arrived at, has become just as fixed as that regarding alcohol; so much so, in fact, that no applicant for my care is accepted unless he or she will agree to abandon the weed. This, it may be, is counter to the common view, but testimony and observation, reasoning and experience have brought me to this precept and practice.

If it be asked why such a radical idea governs my counsel and care in these cases, one broad, general answer is given—this: Large and enlarging experience has convinced me, beyond all question, that the use of alcohol and tobacco by convalescents of this class tends, by lowering nerve tone, special and general, to prevent that return to pristine integrity of health which makes it most largely proof against recurrence of a narcotic need.

While insisting on the eminent importance of this triple abstaining during the post-active régime, care must be taken to continue all those factors which make for good during the early abstinence time. It goes without saying that favoring environment, freedom from worry, care along secretory and excretory lines, and a tonic régime, all play a large part in repairing ravages of narcotic abuse, and must be continued, if need be, for months or years; and when to these are added the special causes that make less vulnerable a post-narcotic state, we shall surely note a lasting betterment in patients' future and in professional good repute.

Prospect Place, near Prospect Park.

REFLEX NEUROSES.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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The intricate and complex nature of reflex nervous diseases and the difficulties in the way of studying any pathologic changes that may exist, make them the most complicated of any we have to treat. The long, patient and exhaustive line of experiments, tending to unfold the reflex nerve phenomena, has thrown much light on this subject. You are all familiar with these scientific investigations. When we pass from the physiologic to the pathologic field of investigation we find it still more unfruitful in clearing up our doubts, just as all morbid processes are more difficult to unravel than purely physiologic ones.

When the reflex stimulation is increased, there is an increase of the peripheral irritation somewhere, but where, is the difficult question to settle. Reflex irritation means often an increase in the irritability of the afferent or efferent tract. It may mean an increased irritability of the gray matter of the brain

or spinal cord; or it may mean that the inhibitory influence of the cerebrum is more or less diminished, or, lastly, it may indicate that the sensory tracts and psychic elements are increased. Frequently, in a still more complex manner, the irritation is transmitted from the sympathetic system to the sensory tracts of the cerebro-spinal.

If we study carefully the sympathetic nerves distributed to the pelvic viscera and trace them back to the several ganglia situated at and below the bifurcation of the aorta, following these tracts up the spinal cord and the ramifications to the various organs, we can readily see how intimate and frequent these reflex disturbances are. The urinary and reproductive organs and the rectum are particularly subject to irritations that travel up these sympathetic tracts and cause functional disturbances in other organs. But this is true of all organs and it is not yet possible to understand how an ulcer in the rectum, a contracted cervix, disease in the middle ear or errors of refraction can disturb the stomach, but we know from clinical experience that it is so. We can not yet see how certain abnormal conditions of the stomach and liver, variations beyond our ability to differentiate, can, in one instance, cause pain or intermittent pulse, or palpitation of the heart; at other times a variety of headaches, and at other times psychic phenomena, such as depression and melancholia. We can not explain how anything very cold taken into the stomach will cause a severe lancinating pain in the left side of the head. Perhaps it is due to sudden contraction of the blood vessels excited by reflex action.

Many reflex irritations are beyond our knowledge of the line of reflex phenomena. When I was in the Rotunda Hospital we were in the habit of using hypodermics of ergot to control uterine hemorrhage. The effect was too immediate and pronounced to be due to any absorption and physiologic action of the ergot. We concluded that the effect must be due to reflex irritation. By experiments we found that hypodermics of chloroform or cold water would produce the same results.

The number, extent and variety of reflex nervous disturbances are so great, and the uniformity as to their classification so uncertain, that it seems to me desirable at the beginning of this paper that we define as clearly as possible what nervous diseases properly belong to the class grouped under the heading, "reflex neuroses."

Dr. H. Gradle, of Chicago, has contributed to this society a very valuable paper on the study of reflex neuroses having their origin in abnormalities of the structure of the eye. He has also referred to other reflex disturbances. Many others have aided greatly toward the solution of vexed questions referring to these functional nervous diseases.

There has been and still is entertained, by distinguished neurologists and other special workers, a wide difference of opinion in reference to the nature and extent of reflex nervous phenomena, and as to the propriety of including certain nervous diseases in this class. Among those who have considered that many nervous diseases, including certain forms of hysteria, epilepsy and insanity are due to reflex excitement, we need only mention a few names like those of Brown-Séquard, Sayre, Neiden, Hack, Stevens and others. An opposite opinion has been held, as we are all aware, by able men like Skene, Jaccoud, Romberg, Mitchell, Gray and others. This wide difference of opinion must be due to a want of definiteness of terms and classification, and the results of different experiences in the treatment of diseases. We will be able to clear up some of the difficulties if we make a careful study of the causes of nervous diseases. Malaria, diphtheria, tuberculosis and a long line of diseases are due to a definite cause, a definite germ. Not so with nervous diseases, especially the class we are discussing. Take for instance, the mooted one, epilepsy. It is sometimes due to brain disease, sometimes to brain pressure, sometimes to sensitive cicatrices on the cutaneous surface, sometimes to dyspepsia—more times to causes beyond our ken. We can all bring forward cases to prove that epilepsy has been due to the nerve storms excited by these various causes.

Insanity, with its protean forms of expression, is due to a far greater variety of causes than epilepsy, and is alike difficult to classify. Hysteria, as mysterious and manifold in its causes and expressions, as that weird and popular American disease, neurasthenia, and often associated with it, is subject to the same indefinite laws of classification.

Headaches are due to even a greater variety of causes than any other infirmity we are called upon to treat; frequently reflex and yet by no means always so. We might multiply illustrations indefinitely, but it is not necessary.

Now if we recognize in the first place the law laid down by Wilkes governing functional nervous diseases, much of the diversity of opinion will be cleared up. It is in these words: "Moreover, it is undoubtedly true that there is not a single organic disease of the nervous system which may not be simulated by a functional and curable one."

Now if we recognize in the second place what was indicated in our reference to epilepsy, insanity, hysteria and headaches, viz., that functional nervous diseases are due to a great variety of causes, the line of separation between the different views of neurologists will grow much less distinct. The recognition of these two fundamental facts or laws in the investigation of functional nervous diseases will help us greatly. We are thus enabled to explain how sclerosis, paralysis, locomotor ataxia, etc., also paresis, softening of the brain and various types of insanity have been cured, simply because we have been mistaken in our diagnosis.

When Dr. D. R. Brower was asked what he thought of the success of the man who had cured so many cases of locomotor ataxia, he wisely remarked that he thought he had made a mistake in his diagnosis. A man was sent to me from a neighboring city several years ago, with acute softening of the brain. He recovered and is at work now. How did it happen? That was a mistake in diagnosis.

When we find so much difference of opinion as to the number of nervous diseases that should be included in the class entitled, "reflex neuroses," our simplest way to reconcile the discordant elements is to attribute the difficulty to defective diagnosis. Because one man has a case of epilepsy and cures it by correcting some error of refraction in the eyes, or by the removal of a tumor, or by the correction of some serious trouble in the alimentary tract, or by the removal of diseased ovaries or tubes, and thus places it in the class of reflex neuroses, there is no reason to find fault with the next man who has a case of epilepsy not due to any of these troubles, but to some

serious central lesion which excludes it from the class of nervous diseases we are considering.

It is asserted by some neurologists that hysteria is due to central or psychic origin rather than peripheral or reflex. Hysterical manifestations may be due either to organic or functional disease. They may be psychic or reflex, central or peripheral in their origin.

I had a case under my care several years ago. Her trouble was diagnosed by several of the most noted neurologists of Canada and this country as hysteria. The diagnosis seemed to me correct. She grew gradually worse and after some years died. The autopsy proved the trouble to be tubercular meningitis. Often there is some point of peripheral irritation, as the uterus, ovaries, rectum, etc. A reflex neurosis is developed and it takes on an hysterical type. A psychic element enters in by association of ideas, all the symptoms are greatly magnified and all the extravagant adjectives in the vocabulary are used to describe the symptoms. These cases are purely reflex. But we meet with grave cases at times.

Last year a case was sent me, with a nurse specially trained for hysterical cases. The disease had been diagnosed by four of the best men in New York city and New Jersey as hysteria. All the external manifestations were those of hysteria. Many of her symptoms, such as vomiting, could be controlled by severe discipline. I soon began to notice symptoms that pointed to organic derangement of the bowels. Some obstruction manifested itself and I diagnosed the trouble as malignant; counsel agreed with me. I sent for her physicians and they agreed. Operation revealed the case absolutely hopeless. Now this was undoubtedly a case of mistaken diagnosis, as far as the cause was concerned, but the symptoms were those of hysteria.

Headaches are, in forty-nine cases out of fifty, due to peripheral origin in the eye, the ear, the stomach, the bowels, the liver, the generative organs or at some other point—a reflex neurosis—a functional disease, but the fiftieth case, some one will be unfortunate enough to have, will be due to and part of some grave lesion as a brain tumor, a depressed internal table resulting from a fall or blow, or organic brain disease. Headaches are due to so many reflex irritations that it is often difficult to diagnose them correctly and more difficult sometimes to cure them. We often find a headache the result of more than a single reflex irritation. A headache may be due to derangement of the stomach and liver, the liver and bowels, the stomach and uterine disturbance, or to any of these and some error in refraction. To cure the headache it is necessary to correct all these troubles. The success of the physician depends on his ability to locate the point or points from which the reflex irritation starts.

One writer attempts to prove that reflex irritations are of very rare occurrence and that uterine and ovarian diseases do not produce, *per se*, reflex neuroses, but do so for instance, by indirectly disturbing nutrition and that in turn produces headache and other nervous disturbances. Clinical experience every day disproves this untenable theory.

Three years ago I had a most interesting and instructive case sent me from the East, a lady who had suffered from violent neuralgic headaches which had been gradually growing worse for years, until large doses of stimulants and narcotics were the only source of relief. She was 55 years old. All approved remedies, local applications, hygienic methods and general tonics were tried for six months. At the end of this period the headaches, notwithstanding her general health was much improved, were no better but rather worse. The case seemed almost hopeless. She had quite a deep unilateral cervical laceration, but as she had passed the climacteric there seemed little to be gained from any operative interference. Having exhausted all other means likely to afford relief, I determined to try this last chance. The operation was done with great care in the adaptation of the opposing surfaces. Union was perfect. Two weeks after the operation she began to improve. There were few interruptions in the progress of the case. The headaches disappeared, the sleep returned, she gained all the flesh she had lost and the restless nervousness entirely disappeared. This was undoubtedly a reflex headache—a reflex neurosis. I might quote from my case-book a number of similar cases, but this will suffice to illustrate this variety of reflex irritation.

Nutritive disturbances are often due directly to reflex disturbances. I remember a case sent to me by a physician in Cincinnati. She was 38 years old, quite regular in all her functions, but was suffering from anemia and neurasthenia, the latter dependent on the defective nutrition. I tried for three months to improve her general health, her nutrition, and build up her nervous system. At the end of this time I could not see much improvement. The only symptom she had of any uterine disturbance was a slight non-irritating leucorrhea. I had spoken of an examination before, but she refused, and as there was so little indication of any disease I did not think it important to insist upon it. The slight leucorrhea could be entirely accounted for by her weakened condition. I determined now to know the exact nature of the trouble. I found an extensive erosion, such as would formerly have been termed ulceration, covering the entire cervix, associated with endometritis. The uterine canal was three and one-half inches long. She was put upon appropriate treatment and the stomach symptoms were soon corrected. She improved in flesh and color rapidly and the nervous symptoms disappeared. This was not a case of nervous dyspepsia as had been supposed, but a case of reflex neurosis.

Chorea is a Reflex Neurosis.—In chorea we find many cases due to embolism of the corpus striatum or thalamus opticus, and other serious lesions, and yet every practitioner knows that many cases—the majority of cases—of chorea from their onset and sudden disappearance are purely functional. Dr. H. C. Wood has made it very clear, by showing that the majority of cases are at first functional and due to some reflex irritation, as nutritive changes, and are cured in this stage; but if they continue there is a change of structure and they become organic diseases. Clinical experience is rich in illustration of these cases. Dr. Osler does not agree, as I am aware, with these views.

Reflex Cardiac Neuroses.—The everyday reflex disturbances of the heart, arising from the stomach and other organs, are too familiar to refer to. These reflex irritations may increase in severity until they simulate one of the most painful and serious diseases of the heart, or, in fact, of the body. I will only recite one case to illustrate this statement:

Not long ago a lady was sent to me from central

New York with the diagnosis of angina pectoris. She was 32 years of age and the mother of three children. The youngest child was 3 years old. The trouble with the heart had existed for one year, but had only been severe for two months, and the attacks had become more frequent also. She had been seen by a number of the best New York physicians and all pronounced it a very grave case and liable to terminate fatally at any time. After considerable correspondence she came with her family physician. That night she had one of her paroxysms and we all thought she would die before morning; sedatives and stimulants tided her over this attack. After a few days of rest and quiet, I began to consider the question of treatment. She had had the most skilful and scientific treatment. Nothing was to be expected from remedies, so I tried to see what I could find that might prove to be a source of irritation. She had several rectal fissures and a good deal of tenderness—there was a deep bilateral laceration of the cervix and the perineum was torn back of the sphincter ani. I felt hopeful that the correction of these conditions might prove beneficial.

As soon as she was in a reasonbly good condition, which was not until she had passed through three attacks in each of which we expected she would die, the plastic surgery was done on the cervix and soon after she began to improve. She had several lighter paroxysms but no severe ones. The next step was to repair the perineum and correct the trouble with the rectum. After these were done she had no more attacks, but made an excellent recovery.

Hysteria a Reflex Neurosis—I have referred to this subject in a general way. Two years ago a gentleman came under my care who had been distressingly ill for six years. He had been seen by many physicians in Europe and later in this country. He suffered with agonizing pains in his stomach and shoulders. For these pains and the wretched nervousness he had been given anodynes freely. All the physicians who saw him pronounced his trouble hysteria. These paroxysms of pain and nervousness would come on and grow more and more severe for from twelve to twenty-four hours, when morphin and hot applications would quiet them. His family had become quite estranged from all sympathetic relations, because they felt that these were hysterical manifestations and might be controlled. I could find no pathologic derangement except in the rectum. There I found several ulcers and fissures and marked prolapsus. I corrected these troubles and in about three weeks he was greatly improved and slept well. I kept him on a hygienic course of treatment for two months and he entirely recovered.

Insanity as a Reflex Neurosis—I have had so many cases of insanity in the last ten years, illustrating the influence of reflex irritation producing these mental disturbances, that it is not easy to make a brief selection. I have thought well to draw from other sources also, to give more emphasis to these assertions.

Dr. Frank Churchill reports an interesting case in New York of hystero-neurosis and melancholia, cured by trachelorrhaphy.

Dr. Sprattling, of New Jersey, reports a case of rare and unusual interest, showing the dependence of nervous and mental symptoms on the condition of the other organs.

A patient 28 years old, suffering from hallucinations of a violent type. A large quantity of *débris* was removed from one ear of which he complained a good deal. The patient soon after entirely recovered his health and remained free from the hallucinations.

Some years ago I had a case of melancholia with delusions, due to a contracted cervical canal. Dilatation cured the delusions.

In the *Medical Record* May 2, 1891, Lawson Tait reports a case of periodic insanity with marked homicidal tendency, cured by the removal of the ovaries and tubes.

Drs. Jewell and Mosher report cases of insanity cured by the removal of impacted feces. I have had similar cases.

In 1889 I had a case sent me from New York suffering from melancholia. The patient was 43 years of age and had been complaining for some time. She had been in the care of two excellent gynecologists and was in good condition in this respect, with the exception of a small bilateral laceration of the cervix. I advised douches and paid no more attention to this trouble. She was kept on a course of hygienic treatment, and all remedies and appliances that would correct the digestion, improve the circulation, tone up the system and contribute to the improvement of the mental condition were employed. Every method and plan of treatment I could devise, with the assistance of good counsel, proved ineffectual, and at the end of two years of treatment she was better in general health; but the melancholia had assumed a severer type and she was delirious and was developing a suicidal tendency. Having tried everything else, I determined to repair the lacerated cervix, notwithstanding several of our most noted gynecologists said that it produced no reflex symptoms. After considerable consultation I did a trachelorrhaphy with unusual care in adaptation. She was so wild that it was impossible to keep her still, but we got a fine union and within three weeks we began to see an improvement in the mental symptoms. The patient entirely recovered and is well to-day. This, gentlemen, was a case of reflex neurosis.

EARLY RECOGNITION AND MANAGEMENT OF THE MENTALLY DISTURBED.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-sixth Annual Meeting of the American Medical Association, held at Baltimore, Md., May 7-10, 1895.

BY W. S. WATSON, M.D.

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Nothing has so much tended to confuse, distort and implant the supposed need of harshness in the management of the insane as our forgetfulness of the infirmities of the human mind. It was assumed that a broad and unmistakable line of separation marked the difference between the sane and the insane, that detection was, therefore, a matter of ease, while the facts are that a mere mist, a veil separates, and a something that is easily broken through. There is a certain tendency to disorder incident to every mind as regards strength, harmony and development.

Do not the eccentricities, the proneness to vice and crime, the indulgence of the passions, the weaknesses of life demonstrate the inherent tendency to mental disorders? As our body is diversified with counterbalancing functions, and in its delicacy and completeness of arrangement is constantly liable to disease and in fact engenders within itself the ele-

ments of disease, vastly greater is the mind likely to be diseased, poised as it is in a sensitive balance and more complex in its structure. We know that insanity is a disease due to some abnormal condition of the brain. The causes are various, and it is practically impossible to give a definition that will embrace all the phenomena.

A well-balanced mind is like a sound body; in health we hardly realize that we have a heart, a stomach or liver. It is thus with our minds if all goes well and our brain is healthy; our thoughts go out and we scarcely realize that we have a mind until there comes into our lives some disturbing element, some cause for excessive thought, a something that gives us mental pain—we may, ere we know it, realize that we have mental disease. It is difficult to recognize the borderland, to fix the line between sanity and insanity, between health and disease, since they so intimately blend into each other. Before the grosser lesions of well-marked insanity there are often defects in nutrition long before structural changes take place. The time when the most good can be done is during the nutritive disturbances which precede structural or organic changes.

As to the actual curability of the insane but little can be said; therefore, it is all important that active measures be taken before a well-defined mental breakup takes place. The brain, the controlling center, is subject to exhausting influences to a much greater extent than any other organ of the body. An overtaxed brain does not recuperate so readily as other organs to perform its functions, but if from any cause or strain sleep does not follow, rapid exhaustion succeeds, together with hyperemia.

Brain-cell nutrition takes place principally during sleep. Anything that interferes with proper periods of rest and sleep directly interferes with the nutritive plasma passing from the vessels to the cells and derangement of the intimate connections between the nervous and vascular systems will ensue, producing grave disturbances of the nervous system, which are followed, sooner or later, by insanity. We shall not attempt to go into any description of the elementary disturbances or morbid processes, as these are matters treated of in our text-books on psychologic medicines, and such description would extend this paper far beyond its intended scope.

Our object is to urge upon the profession the early recognition and repression of the initial symptoms, believing that thousands are needlessly declared to be insane annually and thus are placed under restraint in our asylums without due regard to the type or degree of mental disturbance.

It is lamentably true that an asylum is regarded as a necessity to any and every one becoming wholly, or in part, deprived of reason; a public feeling which is largely due to a belief that asylum physicians only are qualified to understand and care for this unfortunate class. While we thoroughly believe in our insane asylums and of there being a public necessity for the detention and care of the violent class, we do not believe it is necessary nor is it proper to hurry off to an asylum and associate a slightly disturbed individual, a case of melancholia or reasoning mania, with the worst types of insanity where all is repulsive. What can be more humiliating to a man who has any intelligence left than to be made subservient to an ignorant attendant and his abuses, a condition that does and always will exist, to a greater or less extent, where hundreds are congregated together. With all due respect to asylum physicians, many of whom are able men and well qualified for the work assigned them, to insinuate that no others are fitted by other mental training for the recognition of the early symptoms of insanity is erroneous and a palpable wrong, kept alive by a few for their own aggrandizement. Many of the most eminent alienists of modern times were never connected in a professional way with an insane asylum. Who has done more to advance the interests of the insane than Dr. Rush? Griesinger, once a leading authority the world over, was never a physician to an insane asylum, nor was Clymer, Seguin, Spitzka, Beard, Mitchel, Jewell and many others of equal renown and assiduous as workers.

There is nothing mysterious or especially obscure about diseased conditions of the brain that require asylum observation only. We recognize the fact that our asylums afford exceptional opportunities for the study of the degenerate types; while we concede this much, we are confident that the general practitioner and the specialist outside of the asylum are the ones who are called upon to intercept and save from the madhouse. It is to them that people go to for advice, and it is their duty to do the best possible thing at the earliest possible moment; yea, when the first symptom shows itself. We believe it an injustice and deleterious to mild forms of mental disturbances; cases capable of reasoning logically regarding the everyday affairs of life; those yet capable of controlling themselves, slightly melancholic cases, acute mania, restricted monomania, hypochondriacs, all of which fare much better outside of asylums than in them, as a rule.

We do not want to be understood as favoring no treatment or watching of such types; on the contrary, we favor the most active measures, such as can only be secured in private homes and institutions, and the placing of these persons among sensible people for companionship, with refined educated persons for attendants.

The association of a partially insane person, day after day, month after month, with others similarly or worse afflicted, restrained from contact with people of well-balanced minds, is fraught with no possible good. Any medical man having had to do with the mentally disturbed, knows that a very large proportion of such cases have physical ailments that are exciting causes, which only need the practical attention of one conversant with such conditions, one skilled more or less in mental aberrations and their causes, pathologic conditions, etc.

We believe it is the province of medical science to arrest in the incipient stage many brain disorders, heretofore considered incurable, with the aid of modern methods if attention is early given.

Disordered function surely means organic destruction sooner or later. Fully 80 per cent. of the insane cases may be cured if treated early and properly, while scarcely 15 per cent. committed to the great asylums of our land recover.

We have said that the brain is peculiarly liable to disorder through disturbance of circulation; in cerebral inflammation, there is first observed an unnatural exaltation of nervous force with intolerance of light and sounds, a general hyperemia and the capillaries are filled; we may also have a general or local hyperemia of a vasomotor origin from prolonged men-

tal work or excessive tension of an emotional character, gastro-intestinal or pressure from disease of the blood vessels themselves or an encroachment upon them by morbid growths, etc. What are the indications? What will follow if active measures are not taken? First, the congested condition—the hyperemia of the brain must be relieved and promptly, if we hope to keep our patient from the madhouse or from general paresis. Long-continued congestion will, sooner or later, produce organic changes; if there be any physical or mechanical reason for the unequal circulation, as gastro-intestinal sluggishness, we would begin by giving a free mercurial purge, one that will unload the primæ viæ; it is not at all an uncommon thing to find a large amount of accumulations and in character of the worst. We have had cases where it would seem that there had not been a free evacuation possibly in weeks; in which cases enemas and purgatives have been given for days, with copious discharges of the most offensive character possible; after the purgatives have been continued until from the character of the evacuation we were sure it had not been long retained or was poisonous, there has been a marked change in the patient following immediately these thorough unloadings, in many instances there would seem to be little or no mental disturbances left. Then, again, it is highly important that we eliminate the excess of uric acid from the system.

A lithemic condition is an important factor in many of the mentally disturbed; in fact, in nearly all cases there is lithemia. If the hyperemia be due to prolonged overwork or business cares it must be stopped at once, and such means used as will procure rest and act upon the weakened vessels of the brain. When the blood-vessels of the brain become dilated, there is a loss of tonicity. For such weakened conditions we have in electricity almost a certain means of restoring tone to the vessels, thereby improving the nutritive conditions; the constant or galvanic current is the one used, and in mild doses, applying the positive pole by means of a crown electrode over a well-moistened towel that has been wrapped about the head, the negative sponge electrode to the epigastric region or under the two feet, using 3 or 4 milliampères, with an occasional interruption of current, we believe is the best possible means. We would also give ergot in moderate-sized doses daily, with the expectation of aiding the electricity in overcoming the dilatation of the blood-vessels from its well-known powers over such conditions. If the cougestive conditions are dependent upon a purely mental condition, one of nerve strain, of tension from worry or fixed ideas, it is all-important that the mind be put at ease and the brain have rest.

It is well known that the influence of the mind upon the body is wonderful for good or bad, as the case may be; in health, it may exalt functional conditions or suspend them; the mind is all-powerful over the nervous system and may excite or depress, may stimulate or paralyze the processes of nutrition or secretion even unto death, and in disease, the mind may restore funtions, enervate the vasomotor and sensory nerves, thus throwing off disease.

Sir John Forbes gave it as his opinion long ago, that the curative powers of nature were sufficient to explain all the triumphs of homeopathy. We believe that more may be added; it is not to the curative powers of nature alone that the triumphs of homeopathy may be ascribed, but rather that of suggestive therapeutics; with like certainty may the so-called miraculous healings be placed to the credit of psychic influence rather than any supernatural power. No one disputes that the everyday physician's manner and mode of addressing his patients inspires confidence and has a great deal to do with the recovery many times.

The celebrated Dr. Rush gives testimony to the value of inspiring confidence, and often attributed the cure to vigorous concurrence of the will with the action of the drug used. The power of the will in resisting disease, aside from the influence of imagination or concentration of the mind is unquestionable. Since this is a recognized fact in medicine, are we not called upon as physicians and philanthropists to get control of the mind to such a degree as to carry it in the right direction if we can. To do so we must raise psycho-therapeutics to the plane of a fixed science; to do this a thorough test must be made of the laws and conditions governing the phenomena which heretofore has been enshrouded in obscurity; the hostility and indifference to investigation and acceptance by the medical profession generally is a difficulty to be overcome and will only be overcome by the presentation of facts.

Not only is the prejudice of the medical profession to be overcome, but also the peculiar whims of the laity, as there is an opinion current that one part of the human family is subject to the other; that we are likely at any moment, unawares, to be hypnotized and brought under the evil influence of even the most debased. The general public has enough information or misinformation regarding the phenomena of the so-called hypnotism, that in reality it knows nothing and has its mind filled with imaginations as to the great and dreadful possibilities of one in possession of the power to hypnotize. Thousands are worked up to the belief that all the wrongs of life are due to the evil influence of some one; the influence that somebody has over them, and if they commit an evil deed that they are not responsible, or that some one else should be held responsible for their acts; husbands accuse their wives of being under the power of some one; the wife claims that so-and-so has her husband under control; even some of our courts have ruled in favor of this mysterious influence, setting as they have the minds of the general public aflame. This belief has, indeed, assumed very serious proportions. We read almost daily of some dreadful deed having been committed while under some external influence. We feel warranted in saying that there is not a word of truth in the claims of these people—persons who assume to ascribe their wrong deeds to the mysterious power of somebody else. We do feel that the medical profession is called upon to set the minds of the people at rest by placing hypnotism where it belongs—in the hands of the medical profession only. That there is much good to come from this psychic influence there is, we think, no longer room for doubt; as regards harm, that will be just in proportion to the intelligence that goes with it. Let the people be educated to know that there is no hypnosis without acquiescence or coöperation; then will the idea of evil influence subside and claims of that character will cease. Public exhibitions of hypnotism should not be tolerated; lay papers should have nothing to

do with disseminating the false impressions that have brought distress and ruin to hundreds. Stringent legislation against public exhibitions should be enforced. It is unquestionably true that psychotherapeutics provide a means by which a change of condition and many times a cure can be effected, and that its best field of action is diseases of the nervous system, before organic changes have taken place. Hypnotism is effective in disturbances due to imagination, fixed notions; it is a well-known fact that long and continuous thought is ruinous. If we have in hypnotism a means of directing the mind into healthful channels, away from worry, we are justifiable in bringing it into practical use even though it may be true that only a small proportion of persons are susceptible; and notwithstanding there may be possible danger attending the use of this agent, danger is common to many others. If we were to discard from our therapeutics everything that can be dangerous to life, we would have but little that is good left. Our personal experience is too limited to be of real value as to the weakening effect that hypnosis may have upon the mind of the hypnotized. We do believe that such fears are unfounded; we have read the works of most of the ablest writes, those who have treated thousands of cases, in which they do not report a single instance of harm to the mind or nervous system. We do believe, and yet it is inexplainable, that the hypnotizer subjects himself to the loss of some vitalizing principle in the process of hypnotizing that exhausts more or less rapidly. We have, after spending an hour or more and when with two or more persons, felt decidedly exhausted, and when continued for weeks it was attended with loss of energy and followed by insomnia; hence we believe the danger attending the use of hypnotism is principally to the operator.

SOME NON-MEDICINAL SUGGESTIONS IN THE THERAPEUTICS OF EPILEPSY.

Read in the Section on Neurology and Medical Jurisprudence at the Forty-sixth Annual Meeting of the American Medical Association at Baltimore, Md., May 7-10, 1895.

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Interest in the manner of how not to give medicine in the treatment of disease is daily increasing, and there is, probably, no domain of morbid condition to which human nature has fallen heir that repays non-medicinal medicine more rapidly and well than the so-called diseases of the nervous system, and while epilepsy may perhaps not be a disease pure and simple, for convenience of discussion, it may still remain under that caption.

It may be well to state also, that all medicine must not be condemned because in the past the stomachs of our forefathers or even nearer relations, perhaps those bearing the names which appear upon our own visiting lists, have been dosed *ad nauseam* with the long list of drugs in our pharmacopœia; this is no reason for throwing aside these valuable aids to nature's recovery; it is simply an argument for a more thorough diagnosis, a more intimate acquaintance with pathologic conditions, and a more consistent belief in nature herself and the patent indications for remedies outside of lists of drugs.

I have been more and more forcibly impressed with the advantage of several therapeutic resources not usually mentioned by modern authors who have written upon epilepsy, in the treatment of this disease. I wish I could begin my suggestions by citing a long list of cures, but you are all familiar with the general intractable condition of the disease and, I take it, are here with the idea of combining our present knowledge of its treatment, and, if not curing at least alleviating, in a greater measure, the many poor sufferers from the spasm proper and the still further awful depredations upon the mentality.

First, I would place in importance the sanitarium, asylum, colony or whatever plan will isolate the patient from the outside world and place him or her in a microcosm of their own, *sans* temptations, and where the physician will be the inspiring genius. I do not believe that any case of epilepsy, be it *petit* or *grand mal*, can be successfully treated when the patient is at home, because medicine alone will effect but few cures, and a rational home where a rational modern scheme of treatment of epilepsy can be pursued is as rare as an egg of the great auk. This is not alone from the fact that few homes have gymnasiums, bathing facilities and hygienic surroundings; the entire atmosphere and environment of the epileptic must be changed; he must be brought under a systematic life, the better to combat the irregular nerve explosions; in other words, he must undergo a species of training something similar to that of the athlete, with one difference, that it must be lifelong with the epileptic.

Arguments from a utilitarian standpoint might be adduced to show why the epileptic should be isolated from the world, but this paper has to deal simply with the fact from a therapeutic standpoint; a standpoint which says that it is best for the patient to be thus brought under the direct control of his physician, which will give him a greater chance of recovery, and if not recovery, a mitigation of the spasms and at least hold stationary what modicum of mentality the patient may have. The ideal home of the epileptic must be equipped with a gymnasium and a system of baths, especially the so-called "rain bath" which is perhaps the best and only one needed; the value of the Turkish or Russian baths has not yet been worked out. Next in importance as additional resources are methods of employment, such as all the light trades, broom and brush making, carpet weaving, basket making, shoe making, mattress making, wire working, etc., beside, if possible, the manifold duties of the farm. An epileptic who is interested and employed will have fewer spasms, all things being equal, than an unemployed case whose time is principally taken up in contemplation of his unfortunate and well-nigh hopeless condition, albeit, he may be under medicinal treatment, and the former case will suffer less from his spasms than will the latter.

While not claiming originality in the above suggestions, it appears to me that the truths of the propositions laid down so far, merit the earnest attention not only of this Section but of the entire ASSOCIATION; that an earnest and combined effort may be made in behalf of the establishment of more colonies like those of New York, Ohio and Illinois. That every State must eventually assume charge of its epileptics, certainly its poor, is I think incontrovertible, and the sooner the better. To return—the next important resource is not altogether non-therapeutic, inasmuch as some materia medicas have now a chapter or two on food, and very much can be done for the epileptic by carefully mapping out for him his daily bread and

butter. Nearly every epileptic who comes under the observation of the sanitarium or asylum officer is gross in proportion and appearance, and will be found to have a voracious appetite; or, if the appetite is capricious, it is made so by the foul condition of his alimentary tract, and the careful pampering of his abnormal appetite by his guardians; "the poor fellow wants it, and he ought to have it because he has so little enjoyment," a fallacious but extremely powerful argument so long as the patient is at home.

Coincident with regularity in evacuations of the bowels and free flushings of the kidneys, is noticed a striking diminution in the frequency and severity of the spasms, and with the disappearance of the unhealthy development of adipose tissue and the general clearing up of the symptoms of over-feeding, is seen usually a brightening up mentally; and all this without the use of bromids or other medicines beside cathartics and the free use of water, internally and externally.

In formulating the diet of our epileptic patients we have to consider those of different age and those of different habits. I think, if it is possible to oversee the bill of fare, week in and week out, for years at a time, there are many epileptics who may be permitted nearly everything that any one else eats, excluding only such articles of food as are known to be indigestible and guarding most carefully against overfeeding. We shall meet some cases who can not eat certain articles of food without danger of a spasm —for instance, I have under my care a child nearly 13 years old who has not had a spasm for more than a year, yet if she should eat a teaspoonful of common beans, no matter how well cooked, it would, I am sure, precipitate one or more convulsions; in this case there seems to be a personal idiosyncrasy in regard to this vegetable, though a sudden fright as an external agent has induced a severe fit in the same child. There are some epileptics who can not take milk in any form, some who do not like acids, but as a rule their appetites are fully up to the standard and their desires gauged only by their opportunity to crowd food down their throats. Be it understood that I am speaking of epileptics who are more or less defective mentally.

In dieting the epileptic, the first point to be considered is *regularity*. Such patients, at home, if afflicted with so-called good appetites, are allowed to feed at will, and I must say the ease with which they can swallow enormous amounts of food and pass it on through their intestinal tract without apparent suffering or injury is marvelous. That an overloaded stomach will bring on a fit or fits is, I think, unquestionable, and the stomach to which additional supplies are being made at short intervals is in an even worse condition than the stomach simply overloaded, for when digestion ceases, fermentation and decomposition begin and the irritation increases proportionately. We are dealing with patients who may never have known restraint upon their desires, for them we make a stringent rule—nothing to eat except at meal time.

Another point is, eating properly. It is said that Gladstone gave every mouthful thirty-two bites before swallowing the bolus, and while this is all very well for those who will do it, it would be an impossibility to insist upon such a plan with our patients. They may, however, by constant and careful attention, be trained to eat slowly, chew their food thoroughly and properly and use their knife and fork in a manner acceptable in polite society.

Some have a very disagreeable habit of using their incisor teeth as molars, and much time is taken up in teaching them to roll the bolus of food from side to side and use the back teeth to disintegrate the mass and thus thoroughly mix it with the saliva before it is swallowed.

It should not be difficult to understand the condition of a stomach into which the material of a meal has been introduced in lumps and almost solid masses; the mixture of an ordinary meal is bad enough, without giving the stomach the additional duty of chewing the food as well as digesting it; it is also an easy task to demonstrate the subsequent irritation of the above condition upon sensitive nerve masses, only needing a slight inducement to explode in a wild outbreak of nerve energy, as well as the future results upon the stomach itself and the general nutrition, and further argument for table decorum is unnecessary.

Quantity is an important consideration when it is known that those who eat are not capable of measuring the limit of their desire for food by any reasonable standard. Those whose temperament and ability permit them to take active exercise or engage in regular work which calls for an expenditure of muscular force, naturally need more food either in quantity or quality than those who are feeble, or those who by reason of their mental obliquity are disinclined to exert themselves. The boys and girls who are approaching puberty, whose physiques are in that transition period between childhood and womanhood or manhood, need more proportionately than the older persons who have attained their full physical growth.

Sir Henry Thompson[1] speaks of that period of youth "when the whole system abounds in vigor and strength, much superfluous food may be disposed of —first, by the greater activity of the functions of digestion and absorption, and secondly, by the capacity youth possesses for excessive muscular exercise, by which it can use up and eliminate such excess almost at will." While, however, the system of youth can overcome the effects of overplus, for a time, there must come a time when the relation between the "income" and the "output" must be maintained with care or the many and varied evils of overfeeding begin to show themselves.

It will be found an easier task to keep the average man nearer the normal, under a regular and somewhat limited diet, than to maintain a close average of health upon an irregular and unlimited diet.

The quality of the food bears a distinct relation to the value of the diet. Not in the sense of the cost price, for that varies with the condition of the market and the amount purchased, while to the institution which raises its own supplies the cost is reduced to a minimum. But food has certain values reckoned upon its chemistry. It may be divided into—

1. Organic. Nitrogenous: (*a*) albuminates. Non-nitrogenous: (*a*) fat; (*b*) carbohydrates.

2. Inorganic. Mineral: (*a*) mineral.

It is a proper proportion of organic and inorganic, nitrogenous and mineral, albuminates, fats and carbohydrates supplied to the organism that enables metabolism or assimilation to take place; the term metabolism also refers to that power which the ani-

[1] Diet in Relation to Age and Activity.

mal organism possesses of accumulating from its food supplies a store of potential energy, which it afterward transforms into kinetic energy or muscular work and heat; it also takes into consideration the excretory products resulting from the changes which have to be eliminated through the organs provided for that purpose.

Equilibrium of metabolism means that the bodily income and expenditures are balanced; that while the normal physiologic conditions are maintained, there is exactly the same amount of new material absorbed and assimilated as there is of effete matter, the product of the retrogressive tissue changes removed by the organs of excretion; the destruction of tissue is exactly compensated by the formation of new tissue. While the body is growing rapidly there is greatly increased formation in the parts participating in the rapid growth, and the metabolism in these parts is correspondingly increased; on the other hand, during senile decay the expenditure is in excess and the body in consequence wastes. The physiologic equilibrium is practically determined by weighing and observing that the body remains of the normal weight with a given diet.

In working out any problem with the defective class in question it is not easy to determine a standard, the variations in weight and height for the same age being only limited by the number of individuals weighed and measured; it is therefore hardly fair to draw more than tentative conclusions from data made up from comparison with normal individuals of the same age.

Curiously enough, very few of the authorities pay much attention to the question of diet when writing of epilepsy. Nearly all coincide with the opinion that meat is hurtful, and push this forward with some emphasis. Hare, whose monograph upon the pathology and treatment of epilepsy is one of the most thorough and comprehensive upon that subject ever published, claims that very little has been done in the way of observing the effects of diet upon any large number of patients. He mentions a report of twenty-four cases, twelve being placed upon a purely vegetable diet, twelve upon a purely nitrogenous diet, for a period of two months, with a result that the vegtarians had a few less spasms than the others, but the difference was so slight as to be of almost no weight in determining the question.

I, myself, have been unable to put more than a limited number under observation; the six cases of my own were all chronic cases, in which the possibility of cure had been abandoned, and we only endeavored to reduce the number of spasms to the minimum and keep the general conditions of each as close to the normal as possible. Each one was taking 60 grains of potass. brom. daily in four doses. For six months meat was eliminated from their diet, a full regimen of vegetables, cereals and fruits, with brown, white and corn-bread without eggs being given; meat, eggs and milk were then added to the list for another period of six months, careful attention being given every month to the weight, and any variation below that of a preceding month being met by an additional portion of fat-making food. Comparisons between the number of spasms for each month of one period and the corresponding month of the other, and the totals of the two periods, gave decidedly negative results, though the average of the six months of vegetable diet was slightly lower than that of the more general diet. The variation in number of spasms was, however, only that which may be seen in any number of chronic cases under close observation.

Further observation has led me to believe that in such old cases, *diet* has only a subordinate effect upon the fits, and it would seem that so long as care is taken to eliminate any article of food known to be indigestible and to prevent overfeeding, a good, generous and varied bill of fare is the best. In cases where the general health is good, a diet very similar to that prescribed for athletes under training is advisable; for the growing child a fat and blood-forming dietary, and for the elderly and apathetic the most simple and easily digested articles. Monthly comparisons of weights will show losses and gains, and thus permit any necessary change in the amount or nutritive value of the food.

There seems to be much misunderstanding as to what a generous diet means. The parents of our epileptics so many times protest that their child is kept upon the plainest possible diet, investigation showing the statement in some instances to be correct, but the patient is permitted to eat *all that he will*, under a very mistaken idea that because he wants it, his wants are actual needs; in other instances the so-called plain diet is perhaps not a series of dishes fit to be set before a king, but really a rich and highly-spiced bill of fare, entirely unsuitable to a stomach which must not be overburdened, no matter what its capacity. Other parents condemn a diet which, as they say, prohibits cake, candy, pastry and unripe fruit, or fruit known to be indigestible, and say that their poor child has so few pleasures in life, it is a pity to deny him such things, The taste for sugar is no doubt physiological and should be gratified, but candy may be given judiciously just as well as a dessert, as to permit the child to eat it at any or all times. So with fruit, though to my mind the swallowed pulp of oranges and half-chewed bits of banana have been responsible for many a convulsion, and such pleasures are surely a mistake if we are to obtain a cure.

Unless combined with a certain amount of exercise, diet is of an uncertain value; that is, the amount of food ingested to preserve the physiologic equilibrium of metabolism, must be modified. Parkes says of exercise: "A perfect state of health implies that every organ has its due share of exercise. If this is deficient nutrition suffers, the organs lessen in size and eventually degenerate more or less." In common with his more fortunate brother imbecile, who is not afflicted with epilepsy, the epileptic defective is more or less imperfectly developed physically; narrow chests, drooping shoulders and ill-developed muscles so frequently complicated with paralytic deformities are very common.

Very little can be done with the shriveled, useless, paralyzed extremities, though I have seen much improvement in some cases, where the muscles had not atrophied, from properly directed exercise, especially in the lower extremities from the use of a tricycle.

Dr. Graeme M. Hammond, of New York, in a recent number of the *Journal of Mental and Nervous Diseases*, has a very interesting article upon the bicycle in treatment of nervous diseases, in which he cites thirteen cases particularly benefited by riding a wheel under direction. In this connection, Hammond says of exercise: "Exercise, when prescribed

for nervous affections, should preferably be taken out of doors. It must be combined with pleasure and should be prescribed not only with a view of strengthening the muscles, but also for its effect upon the mind. The effect upon the mind is often of greater importance than the effect upon the body. The feeding of the mind on self, and the continual mental introspection which is so common in neurasthenia, hysteria and hypochondria, should be combatted by prescribing an exercise which necessitates the pleasurable concentration of the mind on what is being done, something which demands a certain amount of skill for its successful accomplishment and which must therefore divert the thoughts from morbid channels, stimulate the mental faculties in a normal direction and engender a feeling of brain-rest and mental refreshment."

The value of exercise as pointed out by Dr. Hammond in benefiting certain forms of nervous disease not complicated with spasms is equally marked in the treatment of epilepsy, though the method of exercising must be modified, or rather adapted, to a disease which manifests itself by throwing the victim out of his equilibrium. All varieties of exercise where the patient's life or limbs will be endangered must be thrown out of discussion. The daily risk of danger from falling is sufficiently great without adding anything more. We want in these cases a series of exercises calculated to develop the entire muscular system symmetrically, correct any physical deformity as far as possible, and add nothing in the way of risk from a sudden fall. In beginning systematic exercise with younger patients, the Swedish system of educational gymnastics is invaluable in educating the young, growing muscles for more complicated exercises, giving the best possible results with the least exertion, stimulating not only muscular, but mental development as well, overcoming in a measure the muscle habit of involuntary contraction as seen in the epileptic fit, and generally promoting the physiological action of the internal organs.

Epileptics suffer from obstinate constipation which is extremely difficult to overcome by ordinary treatment, and I am of the opinion that the acne of those who are taking the bromids constantly is in many cases as much due to irregular action of the bowels as to any direct effect upon the skin by the drug; this constipation, skin trouble and depression seen in some cases where larger doses of the bromids are being given, may be cured in most cases by gymnastic and other active exercises, and there is rarely a case so stubborn that it is not at least benefited. One of the most important effects of exercise is produced upon the lungs. It is well known to those whose practice involves a close acquaintance with the chest capacity of the average man, that few utilize the entire compass of their lungs; especially is this seen in these defectives. Now, if the observations of Valentin and Sczelkow are correct—that the greater part of the carbon dioxid which the respiratory organs throw off is formed in the muscles, exercises which shall strengthen respiratory effort and increase the lung capacity should be faithfully followed out. Indirectly exercise may exert very valuable effects upon excitable nerve centers, as well as act positively in eliminating the waste products of the entire body.

Motion, especially such as may be made toward some pleasurable end, and active work which brings with it some reward, will often break up a beginning epileptic mania, and I am satisfied that all epileptics should be kept as actively employed as their condition and environment will allow.

Walking is as suitable an exercise as can be given. No extra machinery is needed and the effect can be studied many times. It must be compulsory and the distance increased as the muscles permit. In these days of rapid transit the legs are becoming a secondary means of propulsion, whereas they should be the chief.

Americans are celebrated the world over as a nation of dyspeptics. It is certain that we are a nation who use every available means to get to our journey's end with the least possible physical exertion and in the shortest possible time; and the query arises whether the dyspeptic symptoms would not vanish with a revival of walking as a popular method of travel.

Football is another method of overcoming the inertia of our patients by a pleasurable game; the striking-bag of the pugilist may also be utilized for those who can stand the violent exercise; the modern wall-machines offer very elegant and very effectual means for developing the muscles. But all such exercise, whether easy or violent, must be guarded by a watchful and intelligent teacher, lest more harm accrue than good.

That diet and exercise are but subsidiary means in the treatment of epilepsy must be admitted; that they are valuable corollaries to such drugs as may be prescribed is, I think, equally true. But unless properly prescribed and administered their therapeutic value diminishes.

The time will come probably when a large majority of our epileptic population will be gathered together in branch asylums connected with our State institutions for the insane and feeble-minded, or in private asylums devoted to that class of patients, and it is from these asylums, where the patients are under the eye and training of a medical officer who has himself been trained in physical culture and made a study of diet, that results are to be had worthy of study; until then we are, so to speak, in a realm of theory.

The older and chronic cases are beyond cure and almost beyond amelioration; but there are many cases of young children among whom, if taken in time, removed from home environment and placed under discipline, carefully studied physically and mentally, thoroughly drilled in exercises calculated to increase muscular development and to develop muscular control, with less attention paid to teaching book knowledge and more attention paid to training in habits of obedience and decorum, I take it that more might be cured: and certainly the care of the incurable would become a simple problem. It may, I think, be reasonably concluded, that diet and exercise are important auxiliaries in the treatment of epilepsy; that diet should be, as the term implies, food prescribed by a physician; that an extreme opinion, either for or against a dietary consisting entirely of nitrogenous matter or, on the other hand, strictly vegetable, is entirely wrong, and a middle opinion, which will give the patient thorough study and afterward arrange the diet according to the patient's physical needs, is the proper theory; that exercise should also be prescribed by a physi-

cian and followed out under his eye as far as possible, particular attention being given to exercises calculated to develop respiratory action, strengthen the heart and generally promote muscular control.

WHEN SHALL WE OPERATE IN CASES OF APPENDICITIS?

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The above question is one that every member of the profession is trying to solve. The subject has been much discussed. Learned essays have been written, read and discussed by learned bodies, often backed up by statistics which, according to the author's views, clearly establishes the correctness of the conclusions set forth in his paper. He does not stop to consider the possibilities of inaccuracies of his statistics. In fact, I am satisfied that our statistics of appendicitis and its results are not to be relied on.

The disease and its classifications have not been sufficiently understood to make them trustworthy and a valuable aid to definite conclusions. For instance a catarrhal relapsing form of appendicitis may apparently recover seven or eight times under medical or the expectant plan of treatment, and the ninth time, owing to the fact that the patient had had previous similar attacks and recovered without an operation, he refuses to be operated on until he is in a dying condition. He then submits, and dies. Statistics give eight recoveries without operation and one death with operation when in reality there are no recoveries, and all due to the fact that the one case had been treated by an advocate of the expectant plan of treatment, and had not been operated on. Had the same individual been operated on during one of the earlier exacerbations of the disease he would have in all probability recovered, and statistics would show one case, one operation and one recovery, instead of eight cases recovered by medical treatment, and one case operated on and one death.

Such statistics must necessarily be misleading. In order to properly understand appendicitis, we should first classify the different varieties or forms of the disease, and so arrange the symptoms as to be able to make our diagnosis of the class of the disease we have to deal with by exclusion. Until this is done, there will always be more or less confusion and difference of opinion in regard to treatment, whether it should be operative or medical. First, then, we have an acute perforating appendicitis, which runs its course very rapidly, perforation taking place in from twenty-four to seventy hours, producing a septic peritonitis that proves fatal in possibly 95 per cent. of all cases that are operated upon, and 99 per cent. of all cases that are left to medical treatment. Such cases, if correctly diagnosed and operated on before perforation, can nearly all be saved. Then all cases belonging to this class should be referred to the surgeon for operation. Second, we have a catarrhal appendicitis, which is an inflammation due to bacillus coli communis traumatism or a foreign body in the appendix, such as fecal concretions or seeds; the latter cause is seldom present. This form is usually of a recurring or relapsing nature, one or more attacks occurring within a shorter or longer period. Some cases are accompanied with suppuration and abscess within or without the peritoneal cavity. Some cases result in perforation and cause death very much in the same manner as those cases of acute perforating appendicitis. This form of appendicitis is the one that has caused so much confusion and difference of opinion in the profession in regard to what treatment should be adopted. Some of the cases terminate by resolution and the patient gets well without an operation; some terminate by suppuration, point externally, open and the patient recovers. Those cases that terminate in perforation, producing peritonitis, are the ones that the surgeon is often called to operate upon, and generally after fatal septic peritonitis has taken place.

He operates to give the patient the benefit of the little chance left; death follows; the physician says, "I told you so," and writes a paper condemning operative procedure in cases of appendicitis to be read before his medical society. He has probably treated a few cases of recurring catarrhal appendicitis and succeeding in relieving them of their attacks, for the time being, left them for some surgeon to operate on in the future; he is then able to draw statistics. He has three or four recoveries from medical treatment to report, and one case where surgical treatment failed. He does not state what the result would have been in the case treated surgically had it been treated medicinally. In my judgment, the only way to arrive at a trustworthy decision of the comparative value of operative or non-operative treatment of appendicitis would be, not to report a case as cured when treated medicinally until a sufficient time had elapsed to be sure the case was well and would not return, say a period of two or three years. We should also include the cases under this head that had been so treated until they were in a dying condition before operative interference. In other words, all cases operated on after medical treatment of a longer or shorter time, and at the time of operation were found by the surgeon to be in a condition that excluded the possibility of recovery, whether operated upon or not. It is unfair to surgery to class such cases as surgically treated, and statistics based on such classification are of no value. On the other hand, in making up statistics for the surgeon the only cases that should be included are those that have been treated by the surgeon from their incipiency; cases where the surgeon had been privileged to operate at the time, in his judgment, was the most suitable or most promising. Such statistics when carefully compiled would be a valuable aid to the physicians as well as the surgeons in determining the course of treatment to be pursued. What is needed at the present time is more thorough knowledge of the different phases of the disease and the peculiar symptoms accompanying each, that we may be able to distinguish one from the other and so determine the best method of treatment. Until this is accomplished there will always be the widest difference of opinion in regard to what treatment should be adopted. It would also be well for the physician and surgeon, while investigating the different phases of the disease, to carefully study the early symptoms that he may be able to recognize the existence of the disease in its incipiency, as a favorable result often depends upon early treatment, especially so when surgical means are resorted to. Among the earlier symptoms are more or less pain over the abdomen, tenderness over McBurney's point, midway between the umbilicus and crest of ilium; sometimes cramps in the bowels, with diarrhea or nausea. If

either of the above symptoms are present we should suspicion appendicitis and make a careful examination for the same. If we recognize it at this stage and operate, 95 per cent. of our cases will recover. If we fail to make our diagnosis until we have a general septic peritonitis, then we have a complication that will add very greatly to the mortality under any treatment. After peritonitis takes place we nearly, if not quite, always have perforation, and, excluding cases of peritonitis caused by septic tubes or ovaries, perforation of bowels by ulcers or traumatism, peritonitis means appendicitis. During the last five or six months I have had several cases, two especially interesting, which I will report.

March 6, I was called six miles into the country to see a young man about 30 years of age. Upon arrival I found he had been awakened during the night with severe cramps in his bowels, attended with diarrhea and some vomiting; his temperature was normal; pulse 80 per minute; respiration 18. Upon physical examination I found the skin moist and cool, tenderness over the entire belly but no distension or tympanites; tenderness over McBurney's point was more marked than anywhere else, and on deep palpation I imagined I could detect a small indurated mass. I diagnosed appendicitis and advised an immediate operation. Upon inquiry on the part of the patient if it were not possible for him to get well without an operation, I told him that very few cases recovered without an operation, but that when they did the trouble often returned and continued to give trouble, and sometimes perforation took place, producing peritonitis, which nearly always proved fatal. He finally said he would think it over until the next day when he would give me an answer. The next day I found him comfortable, no fever, no tympanites, less tenderness over the abdomen and very little over McBurney's point. I imagined that the induration I had felt the day before had disappeared. The patient was not ready to be operated upon and I was much less inclined to urge it. I continued to see him every other day for about ten days, during which time he continued to improve, with regular bowels, no pains, or very little if any. I discontinued my calls with instructions to call me at once if any untoward symptoms should manifest themselves. Two days later I was sent for in a hurry to see him. I found his temperature 103, pulse 100, and quite an indurated mass in right iliac region. I now insisted on an immediate operation. He was sent to St. Mary's Hospital and I operated on him the next day, March 21. I found necrosis of the appendix, and also quite a large portion of the bowel. The appendix had sloughed off and was found in the cavity with the pus and fecal matter that had escaped from the bowels. I removed the appendix, closed up the opening in the gut, washed out the cavity and packed with iodoform gauze. The patient recovered, but he was two months at it. He had no fever or peritonitis after operation. The wound suppurated, the necrosed gut separated, came away and left a large fecal fistula through which all his stools passed for a month. The fistula finally closed and the patient is now well. Had he submitted to an operation when I first saw him it would have been much less dangerous, and he would have been well within two or three weeks with one-tenth of the suffering and annoyance that he had as it was. The other case occurred in a young man 31 years old. I saw him on Sunday morning at 6 o'clock, Nov. 3, 1895, and found his temperature 102.5, pulse 90, tenderness over the abdomen, and quite an indurated mass in right iliac region, which was extremely tender on palpation. He stated that he had first felt pain and uneasiness in the bowels Thursday night; he was better Friday, and went to the office to look after his business; Friday night he again felt bad and had considerable pain in bowels; Saturday he was again feeling better, and went thirty miles in the country to attend to some business on his father's farm; his bowels moved as usual Friday and Saturday, without pain; Saturday night he had a severe pain in the bowels, attended with fever and a swelling in the region of the vermiform appendix. He then realized he had an appendicitis (he being a physician); he also knew something must be done to avert the impending danger, and he sent for me at daylight to operate. I examined the case; diagnosed appendicitis. I laid the facts before him as I saw them, and advised an immediate operation, which he consented to at once. He was taken to St. Mary's Hospital, where I operated on him at 11 o'clock. I found perforation of the appendix, with quite a quantity of fecal matter and pus, which was shut off from the peritoneal cavity by the flimsiest kind of adhesions. The wall formed by the adhesions was so frail that I am satisfied they would have given away before a few more hours' accumulation of pus and allowed the contents of the cavity to escape into the general peritoneal cavity which would have precipitated an attack of septic peritonitis that would, in all probability, have proved fatal. The patient's convalescence was uninterrupted.

I might go on and report a great many more cases in evidence of the importance of early operations, but I think the above are sufficient. Nearly all operators with much experience have reported many cases where early operations were the means of saving lives, while had they been delayed death must certainly have followed. In conclusion, I think until we are able to differentiate between the cases that are going to perforate and allow the contents of the bowels to escape into the peritoneal cavity and those where nature will throw out plastic lymph and form a wall separating the diseased appendix from the peritoneal cavity in such a manner as to seal up the pus cavity and thus cause it to open externally, and the catarrhal relapsing variety, which sometimes recovers without operation, by means that are unmistakable, that all cases of appendicitis should be operated upon as soon as diagnosed, because the danger is almost *nil* before perforation, but after perforation an operation will not always stop the progress of the septic condition. Of course some cases will never recur, and if we operate on all cases we would operate on some that would get well without an operation; but with our present knowledge we can not tell which case will recur and have no relapse and which will not, and by waiting until rupture has occurred many cases will die which, by prompt surgical interference, would be saved.

The Health of the Pope.—His Holiness is so far reëstablished in health that on several of the bright, dry, exhilerating days we have been enjoying lately he has been able to take carriage exercise in the Vatican gardens. These outings are timed for midday, when the warmth is greatest, and have included a visit to the Tower of Leo IV and to that stretch of the gardens which is cultivated under His Holiness' direction.—*London Lancet.*

ON SOME DIFFICULTIES IN REFERENCE TO THE EARLY SURGICAL TREATMENT OF APPENDICITIS.

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Although discussions upon appendicitis have been quite numerous lately, I hope there is no need to apologize for bringing this subject up again. In view of the immense importance and the great interest which attach to this disease, and also of the *many points still entirely obscure and unsettled* in connection with it, and last, but not least, the continued existence of so many skeptics as to the prevalence of the affection as well as to the importance of its surgical treatment, it can not at present be discussed too frequently.

While it is true, that the surgical technique of the operation for appendicitis has reached, especially through the efforts of surgeons of this country, a state of perfection hardly to be excelled, it is to be regretted on the other hand that, as to the affection itself, particularly as to its etiology, diagnosis and prognosis, a vast number of errors still prevail. This deplorable fact appears to me to be the more important in that recently even the general press has taken a great and most unpleasant interest in this particular *locus minoris resistentiæ* of our medical knowledge. Thus an obstruction policy is raised against timely surgical interference, which doubtless handicaps the treatment of a great many cases.

As stated before, the technical part of the question before us has reached a state of most gratifying perfection. As soon as the abdominal cavity is opened, the further surgical strategy is, as a rule, clearly outlined.

If the operation is done for relapsing appendicitis, if, in other words, a simple appendicectomy is to be performed, no difficulty is encountered. Under the auspices of thorough asepsis, in fact, the prognosis is most excellent. The incision, at least four inches in length, should be made parallel with Poupart's ligament and with its center opposite the spina anterior superior ossis ilei. In this way enough space is secured to allow complete and safe work. The section of the musculus obliquus externus and of the aponeurosis should be made to correspond, care being taken by using blunt instruments (handle of scalpel, of closed Cooper's scissors) not to cut any fibers crosswise. If the parts, thus separated, are well readjusted after the operation, perfect union will take place. Thus formation of abdominal hernia will best be prevented. Care should naturally be taken to use the same blunt instruments for separating the fibers of the musculus obliquus internus and transversus, the direction of which is somewhat oblique to those of the musculus obliquus externus.

After the peritoneum is divided and the caput coli pulled out, the appendix is easily brought to view and removed. Care should always be taken to ligate the mesenteriolum of the appendix in several portions, before the latter is severed. Having carried out this precaution a reliable assistant presses the appendicular region of the cecum firmly together in order to prevent any outflowing of the intestinal contents, while with the scissors the appendix is snipped off very close to the cecum. Previous to the separation, however, if palpation has shown the presence of fecal matter within the appendix itself, it is my custom to prevent its escape by surrounding the appendix with a ligature close down to the point of the intended division. (See illustration.) In case of insufficient assistance it is advisable to put a prophylactic suture around the base of the appendix between the point of the intended division and the cecum. This can be removed after the small opening is closed. The closing is effected by two to three Lembert's sutures of thinnest silk, inserted through the serosa. Perfect approximation is facilitated by stripping the musculo-serous coat somewhat backward to the cecum, just as the skin flap is retracted in a circular amputation, and cutting off the protruding mucous coat.

A small amount of iodoform powder is dusted into the inner surface of the stump, but the wound itself must not be brought into contact with any antiseptic substance. Silk is chosen for the peritoneal work, as well as for that of the abdominal wall, on account of its antiseptic reliability, which, in my mind, outweighs the otherwise considerable advantage of catgut.

APPENDICECTOMY.

1, 2, Prophylactic ligature. 3, Cecum. 4, Stump. 5, Protruding mucosa ligature. 6, Lower portion of Ileum.

The same principles hold good when extensive adhesions are found. These are divided. To gain more ground for safe work it will be sometimes advisable to add a second incision, rectangular to the first and running from its center toward the spina anterior superior ossis ilei. It is to be understood that union by first intention is striven at just as in a case of ordinary appendicectomy.

But an entirely different plan of treatment must be pursued if the inflammatory process has been followed by the formation of an abscess. Most fortunately, protecting adhesions are established in the great majority of such cases, creating a real empyema. (I would propose to call this pyo-appendix, in analogy to pyothorax, pyosalpinx, etc.) As this is practically an extraperitoneal abscess, it gives a most excellent

prognosis, as a rule, and is not to be compared in significance with that of a pus accumulation in the free peritoneal cavity.

The incision through the abdominal wall in such cases should be the same as described above. Then, after the peritoneum is reached, a grooved director is introduced in the direction of the abscess. As soon as pus appears in the groove of the instrument, a small Péan forceps is pushed in alongside the groove of the director. After the opening is gradually dilated, the cavity is exposed by holding back the tissues with blunt retractors. If the appendix is now found lying free in the cavity, its removal is a matter of course. The whole cavity is then packed loosely with iodoform gauze, which is then protected by a large layer of mossboard.

When, however, the appendix is gangrenous and is surrounded by strong adhesions, having become, in fact, a portion of the walls of the pus cavity, thereby shutting off the latter from the great peritoneal sac, the danger of its immediate removal would be very great. It is a well-adopted surgical principle to remove gangrenous tissue, wherever it may be, without delay. But like many other axioms this has to be taken *cum grano salis*. The punctum saliens will be here, whether the price paid for the removal of such an appendix is not too high. While it would certainly be desirable to see such a dangerous element eliminated, the breaking-up of the protecting walls would certainly entail the greatest possible risk of infecting the whole peritoneal cavity. Great is the difficulty of determining a border line between radical and conservative indications in such cases, and it will frequently be left solely to the surgical instinct whether the appendix should be hunted for and removed or not. The more radically disposed surgeon, eager to avoid possible recurrence, tries to get hold of the appendix, cost what it may. The conservative surgeon, eager to avoid infection of the general cavity by risky manipulations, is apt to satisfy himself too easily by simple evacuation of the liquid contents of the cavity, thereby assuming the risk of overlooking a second pus accumulation. It is deplorable that, so far, it has been found impossible to lay down a golden rule for the guidance of the surgeon at this herculean crossway.

If the gangrenous appendix is not removed, it should be carefully surrounded by iodoform gauze, in the expectation that it can be removed a few days later. Beside packing the cavity with iodoform gauze it is advisable to pour in about a tablespoonful of a 10 per cent. mixture of iodoform-glycerin.

If appendicitis has ceased to be a local infection and a general peritonitis is fully established, the surgeon is at a loss in the far greater majority of cases. Much, however, can sometimes be done by careful and extensive examination of the peritoneal cavity, the finger or grooved director being valuable diagnostic means. Such explorations, done if possible under anesthesia, frequently disclose conditions, which by superficial examination were not discovered, such as secondary abscesses between the loops of the intestine, etc. Here the treatment should be to thoroughly evacuate the abscess, wash out the peritoneal cavity with a hot saline solution, carefully wipe off the fibrinous exudations, and introduce iodoform gauze—preferably wicks, on account of their greater absorbent power—or small drainage tubes surrounded by iodoform gauze, as advised by Miculicz. Such procedures will once in a while, even in bad cases, meet with astonishing success. Clinical experience has shown that recovery has taken place even when the surgeon proceeded to the operation without a spark of hope, where, for instance, the pulse was not perceptible. Vice versa, however, cases have ended fatally where the prospects were comparatively good. It is no doubt depressing for a surgeon to proceed to heroic manipulations under such circumstances. But it should not be lost sight of, that a patient suffering from general purulent peritonitis has, indeed, nothing to lose; he should therefore be operated upon at all hazard. The permission of the patient can be obtained almost always on account of his great suffering and his cognizance of the unfavorable outcome of treatment by internal

ABDOMINAL SCAR TWO WEEKS AFTER APPENDICECTOMY.

medication. It has been my experience that the trouble in getting the permission in such cases comes from the attending physician and not from the patient or his friends. Consultation and consideration usually consume most valuable time.

Extensive exposure of the peritoneal cavity enables the surgeon to evacuate the pus from pockets and crevices of the abdominal cavity and destroy adhesions which form the walls of small abscesses. These adhesions are generally the outcome of a previous inflammatory process, and often form a great impediment to the thorough evacuation of the pus. A thorough disinfection of the abdominal cavity is still a desideratum, but if at least a large quantity of infectious material is removed the degree of the toxic influence is considerably reduced. By thorough

evacuation also the intra-abdominal pressure is necessarily lessened, so that the respiration, as a rule, becomes much freer.

How much such heroic procedures as alluded to above can sometimes achieve, may be illustrated by a case of my own, the history of which I beg to submit (Compare Beck, "Tubercular and Suppurative Peritonitis," *New York Medical Journal*, April 21, 1894.):

Jacob W., aged 7 years, who had always been in good health before, was suddenly taken sick with chills and sharp pains in the region of the umbilicus. Vomiting set in a few hours later. Dr. Sandberg of this city, who was called in, administered laxatives and also washed out the stomach and bowels without effect; he was accordingly led to suspect ileus from intestinal obstruction and advised immediate laparotomy. When I saw the patient on the evening of May 17, 1893, I found a strong, well-nourished boy, showing the typical facies Hippocratica. The weak pulse was 131, temperature 101, and the respiration 32. The abdomen was tympanitic and very painful to the touch. Resistance or particular tenderness at the right iliac fossa was not present. After thorough aseptic preparations at the house of the patient, an incision, 5 inches in length, was made in the manner described above. About three tablespoonfuls of gray malodorous pus were discharged. The intestines were found glued together by fibrinous adhesions to the extent of about half of the peritoneal cavity. They were of a dark red color and could be brought to view only after a cross incision, rectangular to the original one, reaching nearly as far as the umbilicus, was added. Above the synchondrosis sacroiliaca dextra a second pus cavity was found and evacuated. By hunting for the appendix the cecum was found tightly adherent to the synchondrosis sacroiliaca dextra, from which I was afraid to separate it. It can safely be said, that fully two yards of the small intestine, covered with fibrin and purulent exudation, were carefully pulled out, washed with sterile water, and wiped with peroxide of hydrogen. Iodoform powder was dusted over all the portions of the intestine, which had been covered with exudations. The edges of the cross-incision only were united. One loop, about twelve inches in length, was kept outside the abdominal cavity, as it had a dark blue tint, which gave a suspicion of possible ensuing gangrene. It was enveloped in iodoform gauze and the fossa iliaca dextra was also packed well with the same material and the whole was protected by a large moss-dressing.

After the patient had rallied from the shock, his condition became quite satisfactory, until, five days later, pain as well as a considerable elevation of temperature induced me to examine the cavity closely by introducing my index finger, whereupon a retention of pus was discovered in the lumbar region. A counter-incision was made at once above the crista ossis ilei and a large drainage tube, surrounded by iodoform gauze, introduced. Great improvement followed this procedure. It was not ten days before I replaced the enveloped portion of the intestine. At the same time I again tried to find the appendix but in vain, and as the patient made rapid and satisfactory improvement, no further attempts were made to improve it.

Three weeks after the first operation the patient was seized with sharp pains in the region of the bladder; frequent micturition troubled him and his general condition became considerably impaired. No retention of pus could be detected, nor did examination through the rectum and the urine reveal anything in particular. The patient gradually became weaker, had incontinence of feces and several attacks of syncope. After I had conquered a good deal of opposition, the patient submitted to another operation. By pushing the index finger toward the bladder, adhesions were destroyed which had formed the walls of a cavity, extending from the posterior wall of the bladder to the rectum. Two tablespoonfuls of creamy pus were discharged. Forcing my index finger as far as possible toward the opposite side, I succeeded in incising on its tip, so that a drainage tube, nearly one foot in length could be pulled through. Great improvement followed this time also, and two weeks after a portion of the drainage tube was pulled out. This "post-vesical cavity" was now drained from the right side only, so that the counter-opening on the left side became obliterated. Contrary to my instructions the patient was allowed to get up and was taken sick again with chills and convulsions, the source of the trouble this time again being fnrnished by retention of pus in the same post-vesical cavity. Drainage was again established as before, from the right to the left side. When the symptoms had subsided, the drainage tube was pulled out from the left side and the old right opening was allowed to obliterate. Two weeks later the drain was removed entirely and iodoform wicks substituted for another week, after which recovery became perfect. In the right iliac region a large ventral hernia is left, doubtless due to the weakening of the abdominal wall by the long continued drainage. As it does not disturb the patient, it is difficult to persuade him to submit to a secondary operation.

In this case the dangers arising from repeated pus retention were readily counteracted by energetic interference. So fortunate an outcome, however, must be regarded as an exception. Though we are well-nigh letter-perfect in the technique of operative treatment of appendicitis, we are deplorably ignorant of its etiology. If we accept Chauffard's dictum: "*Toute la thérapeutique est dans l'étiologie*," such ignorance may furnish the explanation of the uncertain therapeutic measures which are still adopted by many physicians at the early stage of the disease.

It is customary to say that the prognosis of the disease depends upon its toxic agent, but this is a rather defective explanation. Appendicitis may have its starting point in a simple inflammation of the mucous membrane of the cecum near the ilio-cecal valve. Such catarrhal process might easily extend into the appendix, and even though giving rise to no immediate symptoms might, nevertheless, produce a stricture of its lumen that would lead to retention, or it may even obliterate a part of the appendix (appendicitis obliterans). Even during such slight inflammation the patient is always exposed to the danger of peritonitis, be it caused by perforation or not. The protecting epithelium of the mucous membrane of the appendix might also become displaced or eroded, so that bacteria can easily invade the rich layer of adenoid tissue beneath, finding there most favorable conditions for their development. As the bacillus coli communis has its permanent domicile in this part of the bowels, and as it very frequently is found in pus cavities in or around the appendix, it was at first thought to be responsible for the trouble. But other microörganisms are also found in company with the bacillus coli communis, particularly the streptococcus. Welch advanced the theory, that it is the companionship of these two microbes which excites inflammation in this connection, and that the fact that the streptococci were not found should not be considered a sufficient proof of their absence. The colonies of the bacillus coli communis grow so much more rapidly and extensively than those of the streptococcus, that the much smaller ones of the latter may be completely overshadowed. But as both microbes exist in the intestines of every individual, certain conditions, still unknown to us, must arise in order to give these elements a chance to exert their infectious influence. Do such conditions exist in changes of the mucous membrane as alluded to above or in circulatory disturbances, caused by the curved and angular shapes of the appendix, by an insufficient supply of blood or by encysted fecal matter, particularly if previous catarrhal inflammation has left a stricture? Regarding foreign bodies as an etiologic factor, I must say that in about one hundred and fifty cases of appendicitis operated upon in my own practice, I have been able only once to discover one seed. For the last few years I have taken particular pains to search for the appendix in all my other cases of laparotomy, and have repeatedly found hard

masses, probably fecal matter, in the lumen appendicis in individuals who had never up to that time and have never since shown any symptoms of appendicitis. Slight pressure sufficed to press such contents out into the cecum. I have frequently asked myself in such cases, whether it were not my surgical duty to remove the appendix, but up to date I have not been able to convince myself of the necessity of such a radical step. Such observations, however, have led me to believe, that despite the absence of a circular muscular layer, circulation of fecal matter in the appendix is possible.

In considering the microbiotic theory of the causation of appendicitis we must also not overlook the fact that the micrococcus lanceolatus (Fraenkel), the bacillus pyogenes fetidus and other microörganisms are also found in the pus formations. Furthermore, in reference to the much-discussed bacillus coli communis, it must also be borne in mind, that according to the experiments of Kiessling (Hygienische Rundschau. Bd. 3, p. 724), what is usually called bacillus coli communis does not represent a single bacterial species, but that a great many intestinal bacteria are grouped under this head, which, though alike in several respects, differ distinctly in others. Apropos of the whole germ theory of disease, it will doubtless puzzle us for a long time to name the conditions under which the same streptococcus will set up a trifling tonsillitis in one case or a fatal meningitis or appendicitis in another. Nor will it be less difficult to explain why the same toxic elements in one case cause a circumscribed inflammatory process or a localized abscess, while in another they produce rapidly fatal septic infection. Undoubtedly there exist various forms of sepsis, which our defective means of diagnosis hinder us from differentiation. If we were cognizant of these conditions it might be possible to form a prognosis by bacteriologic test. During operation, of course, specimens can easily be obtained. Unfortunately, however, only a few microbes can be recognized by the microscope alone, so that no adequate conception either of the cause or of the amount of the sepsis can be formed. The great majority of microbes at present known can be made out only by bacteriologic examination, which has the disadvantage that the cultivation of most species consume so long a time as to be practically useless in this connection. Therefore, clinical experience, ocular inspection and the estimate of the general condition will more often furnish the grounds for prognosis as well as the indications for further surgical steps.

Difficult though it may be in many cases to determine the best course to pursue after we have opened the abdomen—how much more difficult is the decision before it has been done. Are the symptoms, so well known to us through the text-books, always sufficiently developed at an early stage; the stage which warrants success after surgical interference? The diagnosis of appendicitis is based upon the presence of acute abdominal pain, the suddenness of the attack, the tenderness and resistance at McBurney's point, the occurrence of nausea or vomiting together with more or less febrile disturbances. Increased temperature in itself is not a reliable symptom, but Madelung regards a marked difference in temperature between that of the mouth and that of the rectum in favor of the latter as peculiar to this disease.

But all the symptoms mentioned are at times also found in other abdominal diseases. The surgeon's knife has frequently demonstrated the presence of appendicitis in cases in which a diagnosis has been made of psaos abscess of the abdominal wall, typhlitis, perityphlitis, paratyphlitis, salpingitis, oöphoritis, peritonitis, intestinal obstruction, typhoid fever, cholelithiasis, hepatic abscess, nephrolithiasis, and even of malaria, influenza or pneumonia. Very often the patient has reached the autopsy table before the error diagnosed has been discovered. The effect of these unfortunate mistakes has been to bring cases to the surgeon's notice at an earlier stage than formerly, and to throw upon him the responsibility of choosing between the danger of delay and the rashness of operating before the symptoms are sufficiently developed. Is it fair to expect that he will always choose aright? As explained above, he can not at that stage of the disease obtain sufficient knowledge of the toxic agent and of its significance and localization. Is it possible, for instance, to recognize a small ulceration in the appendix or to distinguish it from a so-called benign catarrhal process? There is, as a rule, not a single reliable symptom for differentiation. As soon as perforation has taken place the symptoms become violent enough to leave no doubt—but then the disease is no longer appendicitis but peritonitis.

It has always seemed to me, however, that the thing to be feared in cases of appendicitis is not as much the danger of perforation as the possibility of septic infection from the original seat of inflammation. If this be so, early operation would seem to offer the strongest, frequently the only chance of success. This would imply that the surgeon should operate even during the first twelve or twenty-four hours. A family physician holding this view might be disposed to urge immediate operation. But woe to the surgeon, if his expectations are not realized after the abdomen is opened. It has happened, that just he who urged most strongly, will be his most pitiless critic, shifting all responsibility upon his shoulders. If, on the other hand, the surgeon defers the operation until the symptoms become more manifest, any unfavorable result will subject him to the same ungrateful treatment. I have a vivid recollection of a 6-year-old boy who, after having swallowed a considerable number of orange seeds, was suddenly seized with sharp pains in the right iliac fossa. Vomiting and slight convulsions set in shortly afterward. His temperature was 106 F., pulse 144 and respiration 42. Tenderness at McBurney's point being also discovered the family physician, quite naturally, made a diagnosis of appendicitis. The fact that the boy's abdomen had been jumped upon by a companion during play seemed to add further weight to this opinion. A well-known surgeon of this city was called in on the same day, but as he could not ascertain any marked resistance in the right iliac fossa, advised expectant treatment. The right leg of the patient, by the way, could be lifted without causing any pain. I had a chance to see the patient at the same time. A general examination of the patient gave me the impression of a pulmonary disturbance, the difference in the percussion note, however, being only slight. It was agreed to call in a specialist for lung diseases, who, upon examining the child on the following day, made the diagnoiss of pleuro-pneumonia. [Three weeks later I resected a rib for pyothorax; recovery.]

This case is simply a sample of many of the cases in which a surgeon is called to operate for appendicitis where no appendicitis exists. They all serve to show that physicians have learned that procrastination in the surgical treatment of appendicitis is a dangerous thing. And yet, while in the case described above, a laparotomy, although in this connection an unfortunate procedure, would perhaps have been justifiable, in other cases a thorough general examination would have been sufficient to show the inadvisability of operation. It seems to be the opinion of some physicians that, if any trouble arises in the region of the right iliac fossa, no further testimony as to the existence of appendicitis is required. For instance, I was recently called by a most able brother to see a young woman who, six weeks after confinement, was supposed to have acquired appendicitis. There was acute pain in the right iliac fossa, distinct tenderness, vomiting, constipation and slight fever. If I had suggested an operation the family physician as well as the family would have consented at once. Examination of the sexual organs had previously been proposed by the physician, but the patient had stubbornly refused it. Having finally overcome these objections, however, we easily made out a salpingitis, undoubtedly due to the confinement.

In this connection let me say, that in operations for salpingitis I have repeatedly found the appendix participating in the inflammatory process, its end being sometimes soldered to the ovary. I have several times removed ovary, salpinx and appendix together, imbedded in a colloid mass. In such cases, which naturally were preceded by inflammation of long standing, particularly after confinement, the peritoneum was partially resected, as it was found considerably thickened. All these cases turned out well.

Considering all the points alluded to above, it is doubtful whether the time will ever come when it will be possible to make a rational prognosis of the course of appendicitis through its early symptoms, particularly as to whether the case will be one that will "heal spontaneously." This much, however, should be maintained, that appendicitis should not be looked upon as a medical disease up to the time that it has reached an "operative stage." It should not be left to the family physician to call in the surgeon when he wishes him to operate, thus putting the surgeon in a most undesirable position in relation to the case. It should not be left to the family physician to decide whether the operation is to take place at all or when; but the surgeon should bear the full responsibility from the very beginning. An illustration of the fairness of such demand may be furnished by the following case:

A man, 37 years old, a builder of this city, while on a vacation in the Alleghany mountains, had an attack of appendicitis, which was recognized as such by his physicians at an early date. Medical treatment was advised. As the patient himself was aware of the dangers of his disease and also of the advisability of early operation, he demanded a surgical consultation. His condition having improved two days after the onset of the disease, a report was sent to me by the physician, saying that the necessity for an operation had fortunately ceased, but if against all expectations my surgical assistance should be wanted a telegram would be sent me. On the following morning they summoned me to operate. After having gone more than one hundred miles of my journey, I received a dispatch on the train telling me not to come, as operation was unnecessary. Thinking that the patient had succumbed to the delay, I returned. Two days later, to my great surprise, the patient appeared in my office, telling me that on account of his great improvement two days before, after he had had another severe attack, the physicians had persuaded him to keep surgical interference at a distance. This morning, although he had had another attack of violent pain and was feeling very weak and nauseated, he had made up his mind to risk leaving for New York, a journey of ten miles on mountainous roads and six hours' travel on the train. In examining him I found all the classical signs of appendicular abscess, particularly the pain and the presence of a tumor in the right iliac fossa. His temperature was normal, pulse 76 and respiration 29. He could only walk in a bent position. At the operation, which was performed on the following day, a gangrenous appendix was found, loosely attached to the hard walls of a cavity which contained a pint of yellow creamy pus. The wall of this cavity completely excluded it from the cavum peritonei. The opening left in the cecum after the removal of the appendix could be closed only with great difficulty. Two days after operation feces were found in the cavity, indicating the presence of a fecal fistula which, however, became obliterated two weeks later. With this exception recovery was uninterrupted.

In this case the diagnosis was made at the proper time and therefore immediate operation was indicated. The physician who advised procrastination may feel excused by the fact, stated by so many capable men, that a number of cases of appendicitis recover without operation and that the appendix was repeatedly found healthy when an operation for supposed appendicitis is performed. In reference to the first point, however, there is a doubt whether the diagnosis is covered in those cases of appendicitis which are said to heal spontaneously, and, furthermore, whether such recoveries are not temporary and whether the fortunate outcome at a time has not to be dearly paid for by a sudden perforation or spreading infection in a second attack.

In reference to erroneous surgical diagnoses it may safely be maintained that they can fairly compare with those made by the pillars of general medicine. The few surgical mistakes made in this connection are well offset by the numerous fatal cases of appendicitis, not recognized and consequently not operated upon, which, if they had been given the advantage of an early exploratory incision would probably have recovered.

Weighing all the numerous difficulties alluded to, I may summarize my conclusions in that, if there is any doubt as to the presence of appendicitis at an early stage, an unnecessary exploratory incision is by far the lesser evil.

Another Fatality Chargeable to Athletic Sports.—A press dispatch from Salem, Mass., states that a young man, aged 25 years, died Dec. 6 from the effects of being struck on the head by a polo ball at the Salem and Fall River game. He did not complain of the injury until after reaching home. Medical assistance was procured, but it was of no avail. Serious injuries to polo players are not infrequent by reason of falls and collisions, but fatal accidents are not so common as might be expected. We do not remember heretofore to have seen a reported death chargeable to a blow from a polo ball.

SOCIETY PROCEEDINGS.

Chicago Pathological Society.

Regular Meeting, Nov. 11, 1895.

WELLER VAN HOOK, M.D., President, in the chair.

D. W. GRAHAM, M.D., made a report of cases with specimens:

Case 1.—Hypertrophied Bladder, Kidney and Ureter.—Mr. A. F., 27 years old, entered the hospital Sept. 17 last, with extensive extravasation of urine invading the peritoneum, scrotum and penis and extending up over the pubes. This began four days before with spontaneous rupture of the urethra from strictures. There was already when the patient entered, profound septicemia, from which he died on the 19th, notwithstanding free incisions with drainage and external urethrotomy. The patient had a history of gonorrheal stricture of two years duration with little or no treatment for the gonorrhea and no treatment for the stricture. A limited post-mortem examination was obtained. The right kidney and its ureter seemed normal in size and consistency. The left kidney is twice its normal size but there is no hydronephrosis. The ureter is dense and as thick as the little finger. The bladder walls are enormously thickened, averaging three-fourths of an inch, and the cavity can not be made to expand to more than one-fourth or one-third its normal capacity. The microscopical sections show the hypertrophied bladder wall to consist of muscular tissue.

The specimen is interesting as showing some of the remote results of gonorrheal urethritis when not treated, as well as the immediate consequences of untreated urethral stricture.

But it is particularly instructive as explaining what is generally called and treated as chronic cystitis or irritable bladder following stricture even when all the obstructive symptoms of stricture as such have disappeared. A patient with a contracted bladder cavity like this and hypertrophied bladder wall would necessarily have frequent micturition both night and day in spite of any and all kinds of drug or instrumental treatment.

Case 2.—Microscopic Specimen of Anatomic Tubercle.—It was excised from the middle knuckle of the hand of a medical student recently. It began while working in the dissecting room last winter. The section shows characteristic tubercular tissue, but tubercle bacilli have not been demonstrated. Anatomic tubercle is now universally recognized as a local tubercular infection of the skin and occurs in the form of a warty elevation, a softened thickening at intervals, or as a thickened erythematous patch. This specimen was of the latter form. When favorably situated they should be excised.

Case 3.—Chronic Bursitis. Popliteal Bursa Extending into the Leg.—The patient was a male 20 years old, large, robust and muscular. He was apparently free from all the constitutional diseases, such as tuberculosis, rheumatism and syphilis to which chronic bursitis is generally ascribed. There was only a slight suspicion of hereditary syphilis. He had been under my observation somewhat irregularly for two years complaining of pain and soreness on the inner side of the right leg and a limited disability in walking. During this period the patient was on antisyphilitic treatment part of the time because the pain seemed to be in the bone and periosteum and of possible hereditary origin. After an absence of several months he reported to me in May, last, with an oval fluctuating swelling situated midway between the knee and ankle, and between the inner border of the tibia and the muscles. Aspiration showed the sac to contain a synovial-like fluid. Later I extirpated the sac which I now exhibit, and which when removed, was as large as a goose egg. The intimate connection of the sac with the deep fascia and the periosteum seemed at first to point to some kind of a congenital cyst. It developed, however, that the upper end of the oval sac was continuous, by a tubular process as thick as a lead pencil, with the inner popliteal bursa. This tubular process was exsected as high as the tuberosity of the tibia. By means of a probe and flushing with a syringe the flattened popliteal sac was found to cover the whole popliteal space and to extend upwards a considerable distance. Not having the consent of the patient and not being prepared for so important a procedure as opening the popliteal sac, with the idea of a more or less complete extirpation, in view of the fact that the sac probably communicated with the knee joint cavity, I deemed it prudent to make no further dissection. I swabbed the whole cavity freely with full strength carbolic acid, inserted a drainage tube and maintained elastic compression. In a few days the patient went to work and the discharge of synovial fluid seemed to increase rather than diminish. I then injected an ounce of the full strength carbolic acid and maintained it in the sac as long as possible, corking the tube and putting the patient at rest for twenty-four hours. This was afterward repeated. After each treatment there would appear tenderness and effusion in the knee joint. This resulted in diminishing the discharge which also became thinner but it was still sufficient to saturate a heavy dressing twice a day. At this juncture (in July) the patient went to the old country and is now living in Vienna, Austria, where I learn he has since had some kind of an operation. I should add that the patient complained of nothing and I observed nothing previous to the operation which led me to suspect that there was any trouble with any of the popliteal bursæ or other strictures in that region.

My diagnosis is a chronic bursitis of the semimembranosus bursa possibly of tubercular origin although there were in the sac none of the "rice grain" or "melon seed" bodies usually found in such cases. The semimembranosus bursa is the largest of the natural bursæ. Of the four popliteal bursæ it is the one most frequently enlarged. In the adult it almost always communicates with the synovial sac of the joint as well as with one or more of the contiguous bursæ.

DISCUSSION.

DR. GUSTAV FÜTTEKER—The anatomic tubercle is a warty growth of an extremely chronic character. I have observed them on my own hands and on the hands of others in great numbers and for many years. Here, for instance, I can show you one near the tip of my index finger, on the volar side, one which needed more than ten years, to reach this spot from a place on the back of the finger, about an inch distant from whence it started. It will be noticed, that this tubercle has grown like most such tubercles, occurring near the end of fingers in a peripheral direction, and that it has left fine scars, representing the appearance of a net with very fine meshes.

In favor of the genuine tubercular nature of those formations, I would say, that quite a number of investigators found tubercle bacilli enclosed in the tissues of the anatomic tubercle, that I have also seen them and furthermore, that I have seen tuberculosis of a hand-joint originate from anatomic tubercles of the skin, the latter almost covering the entire back of the hand. This was in the case of a man, who for years daily prepared a number of cadavers for my work. A resection had to be performed. The tubercular granulations of the anatomic tubercle share another peculiarity with other tubercular granulations, and that is their fragility.

Excision is not the only proper method for removing those tubercles. I have had between thirty and forty of them on my hands and have successfully removed a number of them with the aid of muriatic acid, while the larger ones were successfully treated by Professor Schoenborn of Würzburg in the following way: Schoenborn dipped a sharp but short-pointed glass rod into a 95 per cent. solution of carbolic acid, then piercing the tubercle with it and repeating this five or six times at a sitting. This procedure was very painful, but it caused the tubercles to shrink and after several treatments removed them entirely. It was just then, I had occasion to observe the fragility of the granulations, for, while the point of the glass rod at first in the upper layers would find a strong resistance, later overcoming this, it would rush right through the granulations, down to the bone.

DR. D. D. BISHOP—The anatomic tubercle was examined for tubercle bacilli, but only a limited number of sections were prepared, and, of course, the fact that the tubercle bacilli were not found would only indicate to us the fact that we probably did not search long enough, because the bacilli are known to be frequent in this variety of tubercle.

LUDVIG HEKTOEN, M.D., read an abstract of a paper on

THE VASCULAR CHANGES IN TUBERCULOUS MENINGITIS—ESPECIALLY THE TUBERCULOUS ENDARTERITIS.

The genesis of tuberculous meningitis presents a great many points of interest. Thus, for instance, the frequent, almost exclusive, localization of this process about the arteries of the pia mater, particularly those in the sylvian fissure; the question of the mode of importation of the bacilli into the brain; the presence of a mixed infection or not—these are all subjects of interest.

Already in 1872, Buhl characterized general miliary tuberculosis, in which tuberculous meningitis often occurs, as a

resorption and infection disease, likening the miliary tubercles to the metastatic abscess in pyemia; and Huguenin, in 1878, came to the conclusion that tuberculous meningitis was due to embolism into the meninges of some product produced in the older tuberculous foci which are nearly always found in the bodies of those who die from tuberculous meningitis. Koch's discovery of the tubercle bacillus, and Weigert's demonstration of the way in which tuberculous foci may break into the veins, by changing the vein walls into granulation tissue, and thus flood the circulating blood with bacilli, furnished the direct evidence of what was thought to be the case.

At the present time the majority of authors regard the infection in tuberculous meningitis as occurring through the blood. There are only one or two exceptions to this statement. Thus for instance, Babes thinks that in certain instances of tuberculous meningitis, particularly those secondary to tuberculosis of the peri-bronchial glands, the bacilli may be carried into the meninges along the deep lymphatics of the neck, by a retrograde import, and Hübbenet assumes the same route in a case described by him. Then Demme and Coates have both described cases of tuberculous meningitis which may have been due to infection through the nose. There seems, however, to be no question but that in the vast majority, if not in all, of the cases of tuberculosis, the bacilli reach the brain through the circulating blood, and that meningitis is secondary to some tuberculous focus in some place in the body. A bona fide instance of so-called primary tuberculous meningitis does not seem to have been described. And yet there is really no reason why a real primary tuberculous meningitis might not originate when we take into consideration the fact, for instance, that Strauss examined twenty-seven healthy persons and in nine of these he found tubercle bacilli present on the mucous lining of the nose. There is no reason why tubercle bacilli from the nose might not be carried directly into the brain by means of the lymphatics, and give rise to a tuberculous meningitis, precisely in the same way in which many forms of non-metastatic, suppurative meningitis are assumed to originate. And then tuberculous bacilli have been found in the ear, and they might easily gain entrance into the meninges from that place. These are only suggestions showing that a real primary tuberculous meningitis is not entirely impossible. Now the opinion being so prevalent and universal that tuberculous meningitis is always of a hematogenous nature, the location of the tubercles in the vicinity of the vessels and the close connection with the vessels have been looked upon as sort of matters of course. If we study the literature we find that the majority of the writers do not seem to have investigated this question very closely. The exact relation of the vascular changes to localization have not been so very thoroughly investigated; we find for instance, that Rindfleisch, Zeigler, Birch-Hirschfeld, Lancereaux, Baumgarten and Guarnieri, and a number of others, all regard the localization of the bacilli as occurring almost always if not exclusively in the adventitia of the arteries, and from the adventitia the outer walls may be involved.

In connection with this primary tuberculous periarteritis, there has been described, particularly by Guarnieri, but also by Baumgarten and others, an endarteritis, which has been regarded as secondary, either due to direct extension through the walls of the periarteritis, or produced in a rather indefinite way, somewhat in the same manner as chronic inflammatory processes in the vicinity of the arteries in various tissues appear to cause a proliferation in the intima, as witness the case described by Weintraud. Then there are others, such as Huguenin, Huettenbrenner, Cornil and Hirschberg, who have observed a tuberculous endarteritis in tuberculous meningitis which they regard as primarily due to the direct implantation of the bacilli upon the intima of the arteries and to which many of the other lesions in the meninges are secondary.

Now with this brief review of the literature before us, it is in order to summarily describe the cases which were examined in Prof. Chiari's Institute in Prague. Nine cases of tuberculous meningitis were studied; the technique of the examination was the ordinary histologic. The only particular point to be called attention to was the fact that pieces of arteries, both large and small, were examined by means of serial sections. It was found that only in this way could one gain a clear idea with reference to the mutual relations of periarterial and endarterial foci. The bacteriologic examination was made by inoculating glycerin agar plates with the exudate at the time of the post-mortem. In only one of the nine cases did there seem to be a mixed infection due to the staphylococcus pyogenes albus, but as shown by the histologic examination this staphylococcus did not seem to have influenced the changes much. The ordinary lesions characteristic of tuberculous meningitis were found. In three out of five instances in which cultures were left under suitable conditions for the development of tubercle bacilli growths of tubercle bacilli were obtained. In a majority of the cases, it was possible to demonstrate bacilli in cover glasses made from the fluid exudate. This shows that the diagnostic measure of puncturing the spinal canal in certain obscure intracranial lesions may be of value because it may be possible to demonstrate tubercle bacilli that may be present in the cerebro-spinal fluid. In two instances rabbits were inoculated with the exudate and developed tuberculosis. In addition to examining the fluid in the meninges, bacteriologic examination was also made of the nose in some of the cases. In these cases this examination was also limited practically to a search for tubercle bacilli. In two out of five cases that could be examined in this way tubercle bacilli were found in small numbers. Inasmuch as these cases were instances of multiple chronic foci of tuberculosis, the exact significance or source of the bacilli found in the nose can not be stated. Gradenigo examined the contents of the internal ear and of the pharynx, and also the nerves that pass through the ear, and in a number of instances of tuberculous meningitis he found tubercle bacilli in these places, and he regarded these bacilli as passing out from the cranial cavity along these routes.

Concerning the arterial changes, it may be said that in addition to the ordinary extra-vascular lesions, which are familiar to all, it was possible in all the cases to demonstrate changes in the intima of the smaller of medium-sized arteries that have to be regarded as primary and as due to the direct implantation of tubercle bacilli into the intima. The lesions that result from such implantation take two forms that are frequently combined but often singly present. There may be a diffuse tuberculous endarteritis, consisting of a proliferation of epithelioid cells located underneath the endothelium, between the latter and the elastic lamina. In addision to this diffuse tuberculous subendothelial proliferation, which sometimes exists to such a degree as to close practically the entire lumen of the artery, there were also found isolated miliary tubercles upon the intima. In some instances giant cells were found in the diffuse tuberculous proliferation just mentioned, but without such an arrangement of the surrounding cells that the appearances could be characterized as a typical tubercle. The more typical internal tubercles, however, did not present any special variations from ordinary tuberculosis. When caseation was present in the intimal tubercles the endothelium over the tubercle would be absent. In many preparations, including pieces of arteries in which there were no other changes except those located in the intima, it was possible to trace the process in its progression outward. The cell proliferation penetrated and split up the elastic layer and infiltrated itself into the media. In some instances the ends of the elastic layer were bent outward and the media had become so much weakened that a slight bulging in the artery was produced, so that there were appearances that could be likened to small aneurisms. In addition to these intimal changes that leave no other interpretation regarding their origin open except that they are due to implantation of tubercle bacilli upon the intima, there are more diffuse changes which in many cases must be regarded as having proceeded from periarterial foci; on the other hand it may be concluded that at times they had proceeded from the endarterial lesions. Tubercle bacilli were found in small numbers in the intimal lesions and frequently in immense numbers in the adventitial foci and in the walls of diffusely changed arterial segments. Regarding the veins in tuberculous meningitis, the following broad statement can be made, viz.: That in every instance there is a marked, diffuse and extensive phlebitis, with giant cells and granulation tissue growing out into the lumen of the vein and causing there a parietal or, often, obliterating thrombosis.

Experimental tuberculous meningitis has been produced by Deutschmann and Darenberg, and more particularly by Tedeschi. The latter worker experimented with a large number of various kinds of animals, particularly rabbits, dogs and guinea pigs, and was able to produce a diffuse meningitis, usually accompanied by changes in the cord and brain. But, inasmuch as no one seemed to have attempted to produce a tuberculous meningitis by means of direct injection of tubercle bacilli into the arteries, the following experiments were made:

A suspension of tubercle bacilli in bouillon or in sterilized water was injected directly into the carotid artery of a rabbit and so far as the experiments have gone—they are not as

yet concluded—it has been found that a meningeal miliary tuberculosis can readily be produced in the rabbit by this method. On the other hand it has not been possible thus far to produce a typical meningitis in rabbits. The lesion in rabbits simply takes the form of a miliary tuberculosis, without the exudate which is characteristic of tuberculous meningitis in man. In the specimens which have been examined from rabbits the lesions have all been so large, that the exact relations of the process to the various layers in the arterial wall have not been demonstrable. The lesions have been found in close connection with the arteries. The arteries have usually been entirely obliterated by granulation tissue, but caseation had proceeded so far that the exact relation of the endothelial lining to the process could not be determined.

The changes observed in the arteries in tuberculous meningitis may be summarized as follows: There is found a primary tuberculous endarteritis which is due to a proliferation of epithelioid cells underneath the endothelium, between the endothelium and the elastic layer; this proliferation may extend to such a degree as to practically obliterate the vessel. As it becomes advanced, leucocytes appear among the epithelioid cells, but in the early stages it consists of pure epithelioid cells, that is, cells with rather large bodies and small nuclei. In addition to this primary tuberculous endarteritis there may be limited intimal tubercles. These may be present singly or they may be present in conjunction with the diffuse endarteritis. These intimal changes may proceed outward and invade the remaining coats of the vessels, and having reached the adventitia, the process may be spread throughout the meninges by means of the crebro-spinal fluid and the lymphatics.

In addition to these changes we can trace from within, there are, of course, the better known and more extensive ordinary extra-arterial or adventitial changes, which may proceed inward and invade all the coats of the artery, and produce also changes in the intima. The changes in the intima produced in this way, however, are not so extensive nor so well marked as the primary intimal changes to which your more particular attention is directed.

There remains to consider the origin of the epithelioid cells found in this sub-intimal proliferation in tuberculous meningitis. The authors, especially Baumgarten, as well as Brodouski, Guarnieri, Cornil and Hirschberg, that have observed these changes and described them more or less fully, trace the epithelioid cells to the endothelium, and maintain that they are produced by the proliferation of the endothelial cells lining the vessel. Baumgarten, in his classic work on histology of tubercle, maintains with reference to tubercles growing in the intima of the pulmonary arteries as well as elsewhere, that they are produced by proliferation of the endothelial cells.

It will be observed that the appearances in the specimens presented are in direct opposition to these views of Baumgarten and others, because the specimens show the endothelium to remain intact and unchanged until caseation has commenced in the intimal tubercles, and then the endothelium is absent. The shape alone of the epithelioid cells described does not allow any inference as regards their origin, but the fact that the endothelial lining remains absolutely undisturbed in the shape of a single layer covering the cells of the proliferation, seems to be a very strong argument against the theory that the epithelioid cells originated from the endothelium, because if the endothelium should proliferate, if, for instance, one single endothelial cell should divide it would result in the displacement of the cell with regard to its relation to the other cells constituting the endothelial lining of the vessel. On the contrary, the endothelium remains not only passive, but even resistant to the process, because it is present even when the endarterial proliferation has reached such a degree as to bring the endothelial lining in contact in the central part of the vessel, as you will see in the specimens under the microscope. Consequently the conclusion seems justifiable that the subendothelial proliferation of epithelioid cells that occurs in the tuberculous endarteritis of tuberculous meningitis does not come from the cells of the endothelial lining of the arteries, but more likely from the subendothelial connective tissue, which is present in such arteries, into which the tubercle bacilli, circulating in the blood, are forced, the bacilli passing between the endothelial cells which remain resistant to their influence until subendothelial caseation occurs.

DISCUSSION.

Dr. J. B. Herrick—Mr. President and Gentlemen of the Society—It was my privilege, through the kindness of Dr. Hektoen, a few days ago to read in full the paper of which he has given this admirable abstract. After reading Dr. Hektoen's paper, and noting the details of the histologic examinations, and after studying his drawings and the beautiful microscopic preparations here presented to us, one is forced to believe that his conclusions are warranted, and that we may look upon it as an established fact that there may be a primary intimal tuberculosis, as well as a primary infection of the vessel wall through the adventitial lymph channels.

While Dr. Hektoen's paper is one of a purely histologic and pathologic character, it is not amiss, I think, to call attention to certain practical results that follow directly from the knowledge that his investigation gives us. In fact, we may say, in passing, that a purely scientific result, a result that is purely pathologic, histologic, or anatomic, is of very little positive value, unless something practical can be derived from the knowledge thus acquired, unless the result obtained helps us the better to understand the phenomena of health or of disease, or aids us in the rational treatment of bodily ailments.

There are certain cases of tubercular meningitis that are sometimes spoken of as cases of anomalous or abnormal meningitis. Hirschberg has collected the histories of these cases. (Deutsches Archiv für Klin. Med. XLI. 528.) In this anomalous form of meningeal tuberculosis, the onset is sudden and with symptoms that may resemble very closely those of cerebral hemorrhage. The symptoms are focal. There may be a Jacksonian epilepsy, a hemiplegia, an aphasia, and the practitioner's attention is scarcely called to the possibility of meningeal tuberculosis until after the lapse of several days when ordinary symptoms of a meningitis appear. At the autopsy in these cases the amount of exudate may not be sufficient to explain the focal symptoms; nor are they explained by the presence of a large solitary tubercle, nor by ventricular exudate or by cerebral edema. But there is an area of cerebral softening, usually on the convexity. This softening is the direct result of the tuberculosis of the wall of some of the cerebral arteries. The tubercular mass may bulge into the lumen of the artery and occlude it; or a thrombus may form at the constricted portion, the result in either case being a cerebral softening that may, in case the vessel is of sufficient size and without anastomosing branches, produce marked focal symptoms. The process in this case would be a simple encephalomalacia.

In a second group of cases this softened mass in the encephalon is itself tuberculous—tuberculous encephalitis. And when we think that between the tuberculous mass in the wall of the artery and the lumen of the artery, there is in so many cases but the thin barrier of the layer of endothelial cells, it is a cause of wonder that oftener the mass does not break through the endothelial lining, in this way liberate into the blood current the bacilli, and flood the little area of the brain that is supplied by that artery, thus producing a localized tubercular encephalitis.

In a third group of cases, the focal lesion may be a softening, the result of arterial occlusion through endarteritis obliterans, induced by a neighboring subacute or latent tubercular process. This origin of obliterating endarteritis is in accordance with the investigations of Friedländer. Weintraud, to whom Dr. Hektoen refers, reports a case of this kind. A localized unilateral hyperesthesia and a monoplegia preceded for some days the onset of recognizable symptoms of tubercular meningitis of the meninges, and in its immediate vicinity an artery with marked endarteritis obliterans—no tubercle bacilli, no giant cells, but abundant young fibrous tissue—thrombosis, and resulting encephalomalacia.

In cases, therefore, in which we can exclude a valvular disease, which practically excludes embolism; in cases where we can exclude an abscess or tumor of the brain; in young persons the walls of whose arteries seem to be perfectly healthy and not predisposed to hemorrhage, and particularly in a young person in whom we find some tubercular focus in lung, gland, or bone, we should always remember that a sudden seizure with hemiplegia, a monoplegia, a Jacksonian epilepsy, an aphasia, or some local sensory disturbance, in other words, a suddenly developing focal symptom, may be the initial symptom of a case that will later run the course of an ordinary tuberculous meningitis.

Dr. Gustav Fütterer—Dr. Hektoen's paper is an excellent one and the microscopical specimens which he showed, proved conclusively every assertion made in his paper in all its details. The fact that Dr. Hektoen has made his examinations of the blood vessels of the pia mater in continuous series, gives him a valuable advantage, enabling him to form precise ideas on each tubercular change itself

and on its relations to other tubercular changes surrounding it; that means here especially the relationship between the tubercular new formations in the tunica intima, the tunica media, and the perivascular sheath. Dr. Hektoen's opinion, that the miliary tubercle of the intima does not originate from the endothelial cells, but rather from the subendothelial layers, seems to be well founded and after examining his specimens, I rather believe, that in the near future, he will be able to furnish sufficient proof of this, because these blood vessels are the best material for such examinations, as the lamina elastica cannot furnish the material for the miliary tubercle and only the endothelial cells and the subendothelial layers have to be considered.

Dr. Hektoen has shown that the tubercle of the intima can be found in the majority of cases of tubercular meningitis and necessarily further anatomic and clinic inferences must be drawn from this. Those tubercles—if located in smaller vessels, may cause obstructions, which, when present in arteries, will bring about an anemia of the parts which they supply, or if located in veins, a venous stasis will be followed by an atrophy, while a breaking down of those tubercles would cause a general miliary tuberculosis as Weigert has described it in similar changes of the veins of the lungs.

As Dr. Hektoen intended to deal with the endovasculitis and mesovasculitis, I will take the liberty to say a few words about the tubercular changes of the perivascular sheath, which are predominant in all cases of tubercular meningitis and deserve our due consideration. A cross section of a blood vessel of the pia mater shows us a tube in a tube, the inner tube consisting of intima and media, the outer of adventitia and the space between both representing the lymphatic space. The miliary tubercles are located on the outside of the perivascular sheath like beads around a ring; this is the case in the pia mater, where no resistance is offered to the growth of the tubercles in a peripheral direction. Consequently, those will neither press on the perivascular lymph spaces, nor on the blood vessel itself, but we see their cells proliferate into the lymphatic space and infect the media, thus causing a mesovasculitis, which is of the highest clinic importance, as it causes a rigidity of the blood vessels, which prevents their full contraction and the proper propulsion of the blood current.

In the brain substance the above described process is about the same, but the tubercles find a much greater resistance by the compact mass surrounding them and they grow in the direction of the blood vessel, which they compress and which thus becomes involved in the tubercular process much sooner than the vessels of the pia mater. This involvement is then, as a rule, represented mainly by a mesoarteritis, or a mesophlebitis, while the lamina elastica forms a barrier against the infection from outside, even, as a specimen which I have with me will show you, until infiltration and pressure close the lumen of the vessel entirely. This latter fact, together with Dr. Hektoen's observation that the endothelial layer over the intima tubercle, remains intact, gives a further strong support for his opinion on the histogenesis of those tubercles.

I said before that the rigidness of the vessels is of great importance, but this importance varies, according to the seat of the process and I would propose to classify as follows:

1. If the diffuse process is located along some larger arteries, for instance, around the arteria fossae sylvii, a larger territory will be deprived of a part of its nutrition and anemia and atrophy may follow, as we find it in atheroma.

2. The affection of small vessels of the pia mater causes atrophy of the marrow substance of the nerves, which we find in the outer portions of the cortex and a diffuse lessening of the same substance in the deeper layers of the cortex and of the adjoining portions of the white substance.

3. If the vessels of the cortex are affected, the atrophies are comparatively small, on account of the rich blood supply of these parts, in which we find a dense net of small blood vessels, which has its smallest meshes wherever there are the most ganglion cells; so the ganglion cells are well supplied.

4. On entering the marrow or white substance of the brain, the meshes of the capillary net become much longer and wider and the poor blood supply in those parts is easily disturbed by the vascular process described, the more so, as a total obstruction of vessels comes about so easy.

Tuberculosis of the pia mater can heal. I have examined a case of Leube, in which he had made the diagnosis of a tubercular mningitis and to his surprise the patient recovered. Leube could not doubt his diagnosis. Two years later the patient died of a tubercular cerebral meningitis. I then made a detailed examination which revealed old cicatrized miliary tubercles along the vessels of the pia mater spinalis, sprinkled with calcareous deposits, the latter showing that the tissues were dead. I have demonstrated those specimens in the Medico-physical Society at Würzburg and have published drawings of them in the year of 1890.

ASSOCIATION NEWS.

The Rush Monument Fund.

Received Oct. 5, from Dr. J. W. Russell	$ 1.00
Received Nov. 6, from Newark, N.J., Practitioner's Club (through Dr. J. D. Brumley)	12.00
Received Dec. 5, from Dr. J. B. Hamilton, Chicago	43.00
Received Dec. 10, from Dr. J. L. Thompson, Indianapolis	5.00
Received Dec. 14, from Dr. J. H. Kellogg, Battle Creek, Mich.	5.00
Received Dec. 19, from Rush Medical College, Chicago	100.00
Received Dec. 20, Interest	25.00
Previously reported	3,357.39
Total	$3,548.39

GEORGE H. ROHÉ,
Secretary and Treasurer Rush Monument Committee.
Baltimore, Dec. 21, 1895.

Amendment to the Constitution.

(Offered by Dr. H. Bert. Ellis, at the Baltimore meeting and by inadvertence omitted from the minutes.)

Amend Article II, page 7 to read as follows: Members by invitation shall consist of practitioners of reputable standing, not connected with affiliated societies. They shall receive their appointment by invitation, etc.

NECROLOGY.

WILLIAM COMPTON, of Lancaster, Penn., December 15, of pneumonia. He was born in 1825, at Cambridge, Lancaster County, was graduated from the Philadelphia Medical College in 1853. After serving as resident physician in one of the city hospitals, he went to Lancaster and began practice over fifty years ago, where he remained until his death. He was at various times physician to the county prison and almshouse, coroner's physician and one of the local physicians to the Pennsylvania Railroad Company. He had been president of the Lancaster County Medical Society and for many years was a member of the AMERICAN MEDICAL ASSOCIATION.

SAMUEL FLEET SPEIR, M.D., of Brooklyn, died December 19 aged 56 years, from hemorrhage of the stomach, probably due to a malignant growth affecting that organ and the liver. He was a native of Brooklyn, the son of Robert and Hannah Speir. On his mother's side he was a descendant of Captain Thomas Fleet, a retired Royal Navy officer, who settled on Long Island about 1660. Dr. Speir received his medical degree at the New York University in 1860, taking the Mott gold medal; also the Wood and Van Buren prizes. He was a thorough anatomist and for a time served as demonstrator at the Long Island College Hospital. He studied abroad, after graduating, giving special attention to surgical clinics. In 1864 he took the prize medal of the AMERICAN MEDICAL ASSOCIATION for an essay "On the Pathology of Jaundice." In 1871 he took the prize of the New York State Medical Society by an essay in which was described his device, called an artery-constrictor, for the arrest of surgical hemorrhage without the use of a ligature. In the same year he read a paper before the New York Academy of Medicine on the microscopic differentiation of morbid growths. He was physician to the Brooklyn Dispensary, curator, microscopist and surgeon to the Brooklyn Hospital, also surgeon to the Eye and Ear Infirmary. He was one of the originators of the Seaside Home for children and a benefactor of many charitable undertakings. He was a collector of exotics and other rare plants, and was a lover of fine dogs and Alderneys. His kennel of hunting dogs had many a prize-winner. He was a member of a number of medical and social clubs and societies, and the founder of one of the best of the sportsmen's seaside homes, known as the Robins' Island Club. He leaves a widow and one daughter.

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SATURDAY, DECEMBER 28, 1895.

FILTRATION AS A MEANS OF IMPROVING THE WATER SUPPLY OF CITIES AND TOWNS.

A long step in the settlement of this important question has been taken by the State Board of Health of Massachusetts. By the Legislative act of June 9, 1893, the State Board was directed to "investigate, consider and report upon the question of a water supply for the city of Boston and its suburbs within a radius of ten miles from the State House, and for such other cities and towns as in its opinion should be included therewith."[1] The result of the act, was the production of the exhaustive report of February 7, 1895.

In that report filtration of Merrimac water was considered as less desirable than to introduce a satisfactory water from another source. The report states (p. xv) "Examinations have also been made with the view of taking the water of the Merrimac River above Lowell, subjecting it to efficient filtration and bringing it down to the metropolitan district. The quantity of water that could be obtained in this way and for this purpose is unlimited; and if there were no way of obtaining a better supply of water and one which was above suspicion, it would be practicable to introduce water from that source at a cost somewhat less than from any other source considered.

"The estimated cost of filtering and conveying this water to the metropolitan district is $17,500,000, but in the opinion of the Board it will be better to pay 10 per cent. more from a source that is not polluted. The experiments carried on by this Board for a succession of years at an experiment station in Lawrence under the immediate direction of H. F. Mills, C. E., a member of this Board, and the filter constructed in connection with the waterworks of that city, have shown that waters as polluted as those of the Merrimac can be effectually filtered and rendered safe for domestic use; but it is also true that filtering areas require continuous care on the part of trained attendants, and that in a few instances at least, inefficient administration or inherent defects of construction have allowed disease germs to pass through filters which were assumed, by good authority, to be a sufficient protection. We are the more easily led to reject the filtered waters of the Merrimac because we have found an entirely satisfactory water in the south branch of the Nashua River above the city of Clinton."

The report further states (p. 104): "The most feasible way of purifying a water like that of the Merrimac River is by filtering it through sand, a method which has been tested at the experiment station of the State Board of Health at Lawrence for many years, and has been in actual use for filtering the public water supply of this city for more than a year. At this place a sand filter was completed and put in operation in September, 1893. It has an area of two and one-half acres, and consists of a bed of sand about five feet thick, through which water is filtered at a rate not exceeding 2,000,000 gallons per acre per day. The sand was very carefully selected with a view to having its grains of such a size that they would remove from the water the germs of typhoid fever. The practical results obtained with this filter have been very satisfactory, indeed, as there has been a very great reduction in the death rate from typhoid fever and some other diseases in Lawrence since it was put in operation."

This system was devised by the Board in 1890, and was the result of "strenuous efforts to produce a filter that would remove all disease-producing germs that could be applied to it, and at the same time filter rapidly enough to serve for a city's water supply. Billions of typhoid germs were cultivated and applied to filters of different construction, and in 1891 we succeeded in removing all that were applied when filtering 2,000,000 gallons per acre daily."[2]

In the current annual report the Board practically concludes the subject by the details of its experiments extending over a period of seven years and including the results of more than thirty thousand bacteriologic analyses.[3] After considering the subject of the filtration of sewage, the report continues the discussion of the great hygienic problem of purification of the sewage-polluted waters of the State by sand filtration. The statistics of the work of thirty experimental filters are given, in addition to those of the large filters at Lowell. For the sake of greater accuracy the report uses some new technical expressions which are self-explanatory:

[1] Report of the Massachusetts State Board of Health upon a Metropolitan Water Supply, Boston, 1895.

[2] Annual report Massachusetts State Board of Health, 1893, p. 546.

[3] Annual report Massachusetts State Board of Health, 1894, pp. 575-710

a. Bacterial efficiency.
b. Bacterial purification.
c. Hygienic efficiency.

"The question of hygienic efficiency of filtration," says the report, "in a great majority of cases is the vital one to be considered." The subject is concluded by an interesting paper by MR. H. W. CLARK on the physical and chemical properties of sands with special reference to the filtration of water, in which some of the facts that have been brought out by the long continued observation are reported.

As to intermittent and continuous filtration, the Board says, p. 653: "Intermittent filtration is successful in the chemical purification of all waters containing ordinary organic matter. Chemical purification by continuous filtration is successful only in the case of those waters which do not contain organic matter in excess of a certain limit determined by the relation of the organic matter to the free dissolved oxygen, which is limited in quantity by the saturation point." The Board, however, goes further than this (p. 645): "It may be stated that so far as the amount of ordinary organic matter and free oxygen are concerned, satisfactory bacterial results may be obtained under proper conditions from the intermittent filtration of any water even when its composition approaches that of sewage."

It is quite clear from an examination of the investigations of the Board that filtration under such conditions as those in operation at Lowell, is a hygienic measure of the highest importance, and it is not probable that in this country generally we shall ever attain the best results that applied hygiene can furnish until the rule is absolute, that all public water supplies shall be filtered. It seems, too, that the "bacterial efficiency" and "bacterial purification" of water filters increase with age (p. 597), a rather important fact in its bearings upon the economic value of a proper filtration plant.

To those municipal authorities engaged in the study of this question, we commend the careful examination of the 1894 report of the Massachusetts State Board of Health as the most exhaustive, thorough and complete report on the subject.

HEREDITY IN RELATION TO INSANITY AND IDIOCY.

The opinion that a neurotic inheritance is the chief predisposing cause to insanity is now very generally held. Some alienists are disposed to go even further, and declare that it is mainly to the orignal constitution of the brain that we must look for the first and chief cause of mental breakdown, the ordinarily assigned causes being none of them, in themselves, sufficient to bring on insanity. It can scarcely be called into question that what is called rather indefinitely "the neurotic inheritance" does render the brain more liable to be affected by such proximate causes, and the belief is now general that, whether we can discover the fact of such inheritance by outward and visible sign or not, its existence and evil influence are indisputable. Indeed, the opinion has by a recent writer been rather dogmatically expressed in the statement that "the condition common to all mental disturbance is to be sought in inherited and inherent brain-defect." This is exclusive of the forms known as septic or toxic insanity and those instances of aberration of mind symptomatic of cerebral exhaustion, traumatism, and other pathologic lesions.

In view of the present etiologic importance assumed by this neurotic inheritance, or hereditary predisposition, it would be well to define this condition and determine its definite relationship to insanity and idiocy. The views of a distinguished German alienist are pertinent to this consideration and may be briefly quoted. In the preface to his work on Psychiatry, PROF. THEODOR MEYNERT expresses dissatisfaction with the statistical method, which, in his opinion, has laid inordinate stress upon hereditary predisposition, and which broadly teaches that predisposition itself is a form of disease and not a condition antecedent to it. Nor is he content to accept what he terms the "mystical conception of heredity," but he insists upon certain anatomic peculiarities in patients which constitute this predisposition. The existence of such peculiarities are to be inferred not only from symptoms and external signs, but also from due consideration of all abnormal proportions of the body. The doctrine of heredity, according to MEYNERT, is carried to an extreme in the assumption of the existence of innate ideas and, in clinic medicine, has led to the erroneous theory of moral insanity. With DUBOIS REYMOND and WEISSMAN, he criticises DARWIN'S theory of acquired faculties, and quotes approvingly WEISSMAN'S words, "Talents do not depend upon the possession of any special portion of the brain; there is nothing simple about them, but they are combinations of many and widely different psychical faculties." At the same time, MEYNERT fully recognizes the possibility of an abuse of the doctrine of inherited anatomic peculiarities and of hereditary predisposition, even from the standpoint of actual fault of organization as its tangible basis, on account of the constant suspicion of mental defect attaching thereto. But he reminds thinking physicians that they may avoid this danger by distinguishing between the many who are possibly called to disease and that fortunately smaller number of persons, who are, in the saddest sense of the term, chosen for disease.

The following conclusions upon this subject have been formulated at our request by DR. JOHN B. CHAPIN, a distinguished American authority, now in

charge of the Pennsylvania Hospital for the Insane at Philadelphia:

1. Physical characteristics, those distinguishing the human species for instance, are transmissible by inheritance.

2. Knowledge, genius, culture, being dependent on the influences of education and environment upon the individual, are not transmissible; but what may be termed mental receptivity, and degrees of cerebral evolution and development, may be inherited. Psychic qualities are not necessarily an inheritance, as they require favorable surroundings and circumstances for their growth and development.

3. Insanity, as a disease, is not transmissible by inheritance but may be acquired or evolved, especially where a neurotic heredity exists as a basis.

4. A neurotic predisposition is transmissible by inheritance; but there is no absolute rule that it will be transmitted in every case.

5. As regards the formation of a neurotic heredity, the in-breeding of neurotic temperaments is most conducive to its creation.

6. Idiocy and imbecility may be the resultant of certain defects having origin in consanguineous marriages; in pre-natal conditions, accidents, arrested cerebral development, infantile meningitis, tuberculosis, and lack of potency on the part of one or both of the parents from unexplained causes.

Premature closure of the sutures in the cranial vault has also been recognized as a cause of imbecility, and for the relief of this condition linear craniectomy has been proposed and performed, without, however, a gratifying amount of success. Indeed, BOURNEVILLE asserts that the theory of LANNELONGUE in regard to craniotomy in microcephalus has no anatomic and physiologic basis, in fact, and that the operation should be banished from the list of justifiable surgical procedures. It is clear that a distinction is to be made between those microcephalic cases in which there is premature synostosis with arrest of cerebral development, and those in which the head is small because the brain itself is small. Among the unexplained causes of lack of potency on the part of one or both parents alcohol may be placed, according to very prevalent popular belief. Not only may the mental endowment of the child be unfavorably influenced by acute alcoholism at the time of conception; but also the cerebral changes and nerve degeneration, and inflammation, resulting from chronic alcoholism are distinctly prejudicial, from the standpoint of heredity.

To broach the topics of degeneration and atavism would take us beyond the limits of the present article, although they are closely related to the subject of the relation of heredity to insanity and idiocy. But to sum up the foregoing, it is evident that MEYNERT recognizes an anatomic peculiarity, which may or may not manifest itself by symptoms of aberration. CHAPIN holds that neurotic instability may be transmitted by inheritance, yet it is capable of exerting only a potential influence in the later development of mental disorder, which may be evoked by social condition, environment, or pathologic changes in the cerebral cortex. Imbecility and idiocy, however, may directly result from defective cerebral development or pre-natal disease.

The whole subject of the etiology of insanity is a complex and difficult one, and, as pointed out by HOLLAND some fifty years ago in his "Medical Notes and Reflections," it is rendered more abstruse by the fact that the pathologic change may be so minute as to defy the search of the pathologist, although sufficient to produce disturbance of intellection; while, on the other hand, great organic changes in the brain are not incompatible with the occurrence of a lucid interval, which, if we are not on our guard, may lead us to entertain false hopes of recovery.

THE ANTISTREPTOCOCCIC SERUM.

MARMOREK, in a recent article,[1] gives the results of his experiments in obtaining a serum with which to combat infection by streptococci. The microbe loses its virulence very rapidly when cultivated in artificial media, hence his first effort was to secure a suitable culture medium. It seems to grow most favorably in a mixture of two parts of human serum with one part of beef bouillon. As the former is difficult to obtain, ascitic fluid was used, and finally one part of this fluid and two parts of the bouillon adopted. To enhance the virulence of the microbe, the author first made a culture of streptococci from an angina in bouillon; then blood, taken from a rabbit killed by intravenous injection of this culture, was inoculated from the same culture. Part of this was injected into another rabbit, which died in eighteen hours; another culture made and injected into a third rabbit, which died more rapidly; and so on. Finally, by successive passages, MARMOREK obtained a microörganism of such extreme virulence that a culture in the dose of one one-hundred-millionth of a cubic centimeter was inevitably fatal. Having obtained these results, and the streptococci found in the human organism being identified, the next step was to obtain immunity in animals. Several methods have been suggested, among them injection of cultures sterilized at 120 degrees, or injection of living and very virulent cultures. The author made use of the latter methods. Efforts are made to immunize the largest animals—the ass, horse and sheep. The ass bears the inoculations very badly. Whichever animal is selected a very small dose must be used to commence with, for one cubic centimeter will produce a marked reaction; the quantity may be in-

[1] Ann. de l'Inst. Past., 1895, No. 7.

creased slowly, but it takes a long time to secure the inoculation—at least six months. Horses immunized against diphtheria support these inoculations better than fresh animals. It is possible that serum may be produced which is both antidiphtheritic and antistreptococcic. Three or four weeks must elapse after the last inoculation before the serum is used, so as to be sure that all reaction has subsided. It will be noticed that there is a marked difference between this method and that of BEHRING and ROUX. The latter authors use toxins and not virulent antitoxins. MARMOREK has been unable thus far to isolate the streptococcic toxins, and serums collected from animals inoculated progressively with filtered or sterilized cultures does not possess very manifest antitoxic properties.

The preventive process of the serum is well marked in animals. For instance, a rabbit weighing 1,500 grammes and given an injection of 0.c.c.2 of the serum will, in twelve to eighteen hours, withstand a dose ten times the mortal one of the streptococcic virus. In the various streptococcic affections of human beings, the serum has not given satisfactory results as yet. Thus in erysipelas, injected in the dose of 10 to 20 c.c., according to the gravity of the case, it seemed to produce an amelioration of the general state. In 413 cases the mortality was 3.87 per cent., which is but little less than that usually found—5 to 6 per cent.

ROGER read a paper on "Immunity Against the Streptococcus" before the French Congress of Internal Medicine. Two principal theories have been advanced, he says,[2] to explain immunity. One invokes the phagocytic action of the leucocytes, the other the bactericidal power of the fluids. The previous researches of this author did not seem favorable to the last hypothesis. He showed that microbes developed with the same facility in the serums of vaccinated as in that of fresh animals. Pursuing his studies he found that microbes from the serum of vaccinated animals had lost the greater part of their virulence—they were attenuated. The results obtained in these experiments were disputed. It was said that the author's cases showed not an attenuation but a therapeutic action exercised by the serum which was injected at the same time as the microbe.

In order to convince the skeptics ROGER undertook a new series of experiments, which he asserts refutes all objections. He inoculated three rabbits. One received a culture of streptococci and succumbed in three days; the same received the same quality of the culture, but one c.c., of serum was afterward injected, this lived five days; the third animal was given the same amount of culture and serum, but after being mixed it either lived or died very late. Hence the serum does not act on the organism, it acts on the microbe. M. ROGER, who was the first to point out the value of antistreptococcic serum, does not deny its therapeutic effect, but believes it is due to the attenuating action. The attenuating property does not belong to the serum only, it is found in the blood circulating in the vessels. Repeating the experiments made in the serum by using blood transfused so rapidly (15 or 20 seconds) that it had no time to undergo the least alteration, exactly the same results were obtained. These experiments clear up the mechanism of immunity. It can readily be conceived that microbes coming into the vaccinated blood rapidly lose their noxious action by becoming an easy prey for the phagocytes.

[2] Le Bulletin Med. 1895. No. 73.

THE JOURNAL IN 1895 AND 1896.

At the close of another year of the JOURNAL'S existence it is fitting that a few words should be said as to its past and its prospects for the future. This is a custom that is honored in the observance, when it can be well done and there is a creditable past to review, and a future for which an honest promise of still better things is possible.

The Editor of the JOURNAL feels no hesitancy in referring to its past from the day of comparatively small things in its incipiency, to the present, when it is unquestionably the largest medical publication in this country and is only exceeded by two or three in other lands. In the present half-yearly volume there are nearly twelve hundred pages of closely printed matter, and while mere bulk is not in itself a merit, it is believed that the quality of the contributions and other literary material has been, on the whole, not inferior to that in any other medical periodical. The JOURNAL is now in a position to command the best scientific thought in the medical profession in this country, as a glance at the list of contributors will show. A review of the work of the Sections as at present organized in the ASSOCIATION, will demonstrate that, from that source alone, a very large number of papers from the leading men in each specialty of medicine have the JOURNAL as the medium of their publication. It is believed that with the plans now adopted, and with its daily increasing circulation (over eight hundred increase during the past year), the JOURNAL will become more than ever the choice of the leaders of medical thought, both through the ASSOCIATION and otherwise, for communicating their ideas and discoveries to the profession. While it is the organ of no specialty and neglects no branch of medical science, it has probably had during the past year in its columns more original articles on certain special departments of medicine, than have appeared in some journals devoted to them alone within the same period.

A special effort has been made to report as fully as possible the proceedings of the higher grade of

medical societies, more especially those which, notwithstanding the merits of their papers and discussions, are not so likely to receive adequate notice from the leading journals of the Eastern section of our country. The JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION belongs to no section and has not limited itself in this respect to any particular region of the United States, but it is natural and appropriate that it should give some special attention to medical matters in the great central region which comes less directly under the view, in this respect, of the widely circulated medical periodicals of the East.

In its editorial columns it has been the aim to present living questions in medicine in a judicious and, on the whole, a conservative way, especially where there is room for reasonable differences of opinion. While this conservatism at times may not accord with the individual views of members of the profession, it is believed to be the wisest policy and it has been abundantly justified by events in the past. Enthusiasm is an admirable thing in medicine as elsewhere, but the scriptural injunction to prove all things, is in medical as in religious matters an essential preliminary to holding fast that which is good. The Hippocratic maxim that "experience is fallacious" is our surest protection against going wild over "*propter hoc*" cures.

A good weekly medical journal is an essential to the progressive practitioner of medicine; it is only by such an aid that he can keep in touch with the scientific advance of his profession. Text-books, hand-books, systems of medicine, and cyclopedias all begin to deteriorate as scientific guides from the date of their publication, but a good medical weekly is always at the front line of medical progress. It is the aim of the JOURNAL to be behind none of its contemporaries, as an exponent of the actual state of medical science throughout the world.

The promise for the future must be taken from the performance in the past. The JOURNAL will take no backward steps.

CORRESPONDENCE.

Shall We Continue to Sterilize Milk for Infants.

To the Editor:—Your editorial under the title "Overdone Sterilization," in the issue of December 14, appears to me very timely. As an early, consistent and persistent advocate of the germ theory, in connection with many diseases, I yet feel that we are too much in danger at the present time of forgetting that there are other causes of disease than microorganisms. The possibility that the exclusive use of sterilized milk as a food for infants, while it would avoid the dangers arising from the occasional presence of the bacteria of typhoid fever, tuberculosis and other infections, may prove a serious obstacle to assimilation and nutrition and thus lead to the development of rachitis, scurvy and other allied conditions of mal-nutrition, as suggested in the recent article of Dr. Starr, to which you refer, was pointed out by me in a paper read before the meeting of the American Orthopedic Association, at Washington, D. C., May 30, 1894, on the subject of rachitis. I quote from this paper as follows:

"In conclusion I would call attention to the fact, which I think I have observed, that rickets and its congener, scurvy-in-infancy, have within the past few years been decidedly on the increase. In point of fact, if one looks over the text-books on the diseases of children written forty or fifty years ago, he will fail to find the slightest reference to the last named disease. And this notwithstanding the fact that our fathers in medicine saw it twenty times in the adult where we see it once. Manifestly it was not for want of familiarity with its symptoms that they failed to recognize it as one of the infantile diseases. Indeed we need hardly go back more than ten years to find medical literature barren of allusions to this subject. To what are we to attribute this somewhat sudden increase in diseases of defective nutrition? Is it simply a coincidence that this condition has devloped simultaneously and pari passu with the introduction of the practice of the sterilization of milk? One curious feature of this increased development of these affections is that we meet it not among the poor, not among those whose hygienic environment is faulty and whose food supply is insufficient or of inferior quality, but among the children of the wealthy who live under the most favorable conditions with strictest attention to hygienic precautions and an abundant supply of the richest milk. Let us consider for a moment the part which ferments play in the preparation of food for digestion and assimilation. We know to how great an extent the digestibility of the great staple of life, bread, is increased by the development in the flour of the saccharomyces cerevisiæ; how beer in its various forms becomes a wholesome drink through the action of the same ferment; how the vinous fermentation furnishes us healthful beverages and useful stimuli and how the acetic fermentation supplies us a most valuable condiment. We also know that of all the ferments none approaches so near the fluid known as the gastric juice as lactic acid. We know what a wholesome and nutritious article of diet milk becomes in the shape of curds and whey, buttermilk, cheese and matzoon, after having been acted on by the lactic acid ferment. We know that under all ordinary conditions milk contains the lactic acid bacterium. Now is not the supposition warranted that up to the point when this ferment has been developed in milk to such an extent as to produce an acid taste which leads most persons to dislike it, its action on that fluid may be in the highest degree favorable to its digestibility and assimilability? Moreover, may not the lactic acid have a very important function in taking up the lime salts and, in combination with phosphoric acid, putting them in condition to be absorbed by the lacteals and appropriated by the system. The fact that sterilized milk is indigestible no one questions. May we not be denying our infants some of the most important of the constituents of milk, allowing them only the fats while we deprive them of the salts? To atone for presenting them a less digestible milk we pre-digest it before giving it, thus depriving the stomach of the natural stimulus afforded by the presence of food requiring digestion, discouraging the secretion of the gastric juice, and still further interfering with the assimilation of the mineral constituents. Do we not perhaps need to revise our recent conclusions on the subject of infant diet and sterilization of milk?"

I observe that that eminent authority, Prof. A. Jacobi, in the leading article of "Pediatrics" for January, 1896, in which he reviews the question of infant feeding at length, while urging the importance of the sterilization of milk in the strongest possible terms, yet calls attention to the fact that "sterilization has been claimed to be no unmixed boon because of its changing the chemical constituents of milk."

In speaking of the method of Dr. Rotch, which consists in sterilization, mechanical separation in order to remove impurities, and remixture of the milk and cream, he says:

"I know of a number of babies who in health and disease have done well on the protracted use of the laboratory milk. Only one observation struck me in a few cases. The formation of the muscles and part of the bones appeared to be slow, the teeth came a number of weeks or even months too late, the cranial bones turned slightly soft in a few instances. In a few such cases I had to add animal broths or juice before the usual time; in one I tried phosphates, (elixir phosphori) which was rejected, in others it was well borne and useful."

For myself I am not prepared to admit that the lactic acid ferment is, up to a certain point, injurious, or indeed that it may not on the other hand be essential to the full digestion and appropriation of milk. It is a well known fact that certain tribes in Africa who subsist largely on milk never, under any circumstances, drink it until it has begun to sour, their experience having taught them that the use of fresh milk is very apt to result in the development of fevers. When circumstances, such for instance, as residence in large cities, make it necessary to adopt means to prevent the lactic acid fermentation from proceeding to the stage in which an acid taste is developed, up to which time I believe the process to be beneficial, I should much prefer boiling to sterilization or Pasteurization, for the reason that I believe that in this way the destruction of morbific bacteria will be more completely effected, and also that changes of a protective nature will be produced in the dead bacteria and ptomaines with which the milk is loaded after sterilization. In this suggestion I feel that I am supported by the experience of Professor Jacobi, who, after saying, "virtually sterilization" (that is to say by means of boiling) "has been practiced by me these more than forty years, and has been taught by me these thirty-five years both in lectures and in books and essays," adds "I always urged that safety increased with the number of boilings." No doubt he was led to give this advice in consequence of carefully observed results of the benefits following repeated boiling as compared with a single boiling. And this leads me to say in conclusion that the great danger of modern medicine appears to me to be the tendency to push theories to an extreme, and to disregard the teachings of experience. No better proof of the existence of this tendency could be advanced than is found in Professor Jacobi's allusion to the advantage of the admixture of cereals for the purpose of finally dividing and suspending the casein of cow's milk in preparing it for digestion by the infant stomach. As we well know it is not many years since we were assured in most positive terms that it was utterly impossible for a young infant to digest farinaceous food at all, and our theoretical teachers instructed us to banish it entirely from the infant dietary. He calls attention to the fact that the researches of Schiffer, Korowin and Zweifel have experimentally proved in diametric contradiction to the statements of previous experimentalists, that a certain amount of starch can be digested by the saliva and pancreatic juice of young infants, and that Heubner of Berlin recommends in intestinal diseases of the very young the simplest flours, mainly of rice and oats, which have a finer microscopical structure than wheat. "Practical experience," says Heubner, "surpasses theoretical conclusions."

Jacobi in a foot note ventures the prediction that "before long more than to-day it will be a generally accepted axiom that cereals must be given to make teeth when milk food alone does not suffice for their development."

My own advice to mothers unfortunately compelled to nourish their infants artificially, if they are able to obtain pure milk, from cows of authenticated good health, and from dairies where proper sanitary precautions are known to be taken and are able to use the milk within twelve hours after milking and after very limited transportation, is that they should keep the milk in hermetically sealed jars and in a cool temperature, but should not subject it to Pasteurization, sterilization or boiling. Under other conditions namely those of protracted transportation, prolonged exposure to high temperature, ignorance of the conditions of health of the cow or of cleanliness of the dairy, they should resort to boiling in preference to sterilization or Pasteurization. It is possible that the boiled milk will tend somewhat more to induce constipation than will the sterilized milk, but this is a trifling objection which can easily be met.

BENJAMIN LEE, M.D.

Successful Implantation of Teeth.

ALMA, MICH., Dec. 18, 1895.

To the Editor:—My little daughter, aged 2 years and nine months, fell headlong down the cellar stairs and struck the two upper middle incisors on the edge of the step, extracting them as completely as if by forceps. The alveolar processes of the right tooth were fractured and the gum lacerated the entire length of the root. After the fright and the crying, which continued a half hour or more, the child was rocked to sleep in her mother's arms and placed in her buggy. We found the teeth on the cellar steps uninjured. They were placed in a normal saline solution of tepid temperature. On the arrival of an assistant with the chloroform for anesthesia, the child was sleeping quietly. Chloroform was administered without the child awakening and the teeth were placed within their sockets and pressed into position; the edge of each tooth fitting firmly in a groove of one blade of a forceps, the hand of the operator being placed on the back of the head with the pressure properly directed. The gums about were cleansed antiseptically and the teeth left in position without further dressing or application.

The accident occurred about 2 o'clock and when the child awoke from her sleep at 5:30, her teeth were in place. The teeth had been out of the mouth fully one hour. Milk and soft food were administered and the lacerated edges of the gums cleansed after the eating. Healing of the gums occurred by first intention.

It is now over four weeks since the teeth were placed and they are now solid, in good position and of normal color. The gums are normal in color and consistency and the appearance of the mouth quite natural.

I report this as a successful case of transplantation of teeth that had been out of the mouth over an hour and as another demonstration of chloroform anesthesia during natural sleep.

E. S PETTYJOHN, M.D.
Medical Superintendent.

It Was Hot Springs.

TENNESSEE STATE BOARD OF HEALTH, NASHVILLE, Dec. 20, 1895.

To the Editor:—On page 1000, December 7, JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, second column, line 10 (from bottom), "Little Rock" should read "Hot Springs." Much fault is found with me because of this error. It is proper to state that I read no paper, only said a few sentences in a conversational way. No proof of the proceedings was sent me, as should have been done. The error is doubtless that of the reporter. You know too well how these things happen. Please make necessary correction, and oblige,

Very respectfully,
J. BERRIEN LINDSLEY, M.D.
Secretary and Executive Officer.

Defense of Hypnotism.

CLEVELAND, OHIO, Dec. 20, 1895.

To the Editor:—I have read with much surprise the note to you from Dr. W. P. Howle, Oran, Mo., published in the issue of the JOURNAL of December 14, in which he condemns hypnotism, along with the fallacies of clairvoyance, faith cure, etc., which intelligent men know to be frauds. But, Doctor, in the light of my extensive experience in regular practice, where I have hypnotized 1,000 cases, never once having failed to produce hypnosis where I made the attempt, I must protest against such indiscriminate and uncalled for condemnation of a great remedy in many cases which can not be rationally or successfully treated by other means. If you are ready for it, I will prepare a paper for your next issue, dissecting this remarkable set of statements. Kindly advise me. Truly, M. MAURICE CARNES, M.D.

Papers for the Surgical Section.

SOUTH BETHLEHEM, PA., Dec. 18, 1895.

To the Editor:—As Secretary of the Surgical Section of the ASSOCIATION, I am now engaged in arranging a program for the Atlanta meeting. We have selected "The Surgery of the Cerebro-spinal Axis and its Bony Encasement," as the special subject for discussion. I am anxious to obtain as full and as representative a discussion on this important subject as practicable. Will you permit me through the JOURNAL to call the attention of our surgical members to this subject, and to request from them a liberal contribution of papers, and careful preparation for discussing the subject. Besides this special subject there will be room on the program for papers on other subjects. I solicit the active assistance and contribution of the members. Members who desire to contribute papers to the Surgical Section will please notify me and send the title of their papers to me as soon as practicable. Very truly yours,

W. L. ESTES.

International Scientific Language.

CHICAGO, Dec. 21, 1895.

To the Editor:—I have read with great interest your address on "The International Scientific Language" in the JOURNAL of this date. The position taken with regard to French seems to be good although as a matter of fact, Spanish is an easier language even than French, and is now used by a greater number of people than any other language excepting English.

Would it not be well, as a means of familiarizing the profession at large, in this country, with one of these languages, to have a page or two of the contents of the JOURNAL, each week in the proposed International language?

Very truly yours,

W. S. CHRISTOPHER.

BOOK NOTICES.

State Charities Aid Association of New York. HANDBOOK FOR HOSPITALS. By ABBY HOWLAND WOOLSEY. Third Edition. 12mo, pp. 267. New York and London: G. P. Putnam's Sons; Chicago: The W. T. Keener Co. 1895.

The first edition of this Handbook was published by the Association in 1877 and the second edition in 1883. No recent work having been found that would supply its place, the managers of the Association appointed a committee to revise it, Miss Woolsey having died since the appearance of the edition of 1883.

This committee consisted of Drs. Charles Hitchcock, George G. Wheelock and W. Gill Wylie.

"Not often," say the committee, "has a work so easy or so grateful been assigned to any committee. Twelve years have elapsed since the publication was last revised by the author, and yet the work done was so thorough, the personal knowledge of the subject so exceptional, and the standard of excellence so high that, beyond the bringing of statistics up to date, and the addition of some footnotes to show the advance, within a very few years, of hygienic requirements, there were but few alterations to be made."

We have been familiar with the former editions of the book, and we concur in the opinion of the committee that "every commissioner of charities and superintendent of the poor, every superintendent of a hospital, will welcome the many practical suggestions to be found in this volume. It should be in the hands of all visitors to hospitals and other charitable institutions and on the shelves of every library in this country."

Twenty-Sixth Annual Report of the State Board of Health of Massachusetts. 8vo, paper, pp. 892. Boston: 1895.

The reports of the Massachusetts State Board of Health are without doubt the most valuable sanitary publications in the country, and they afford not only an object lesson for other State Boards, but they demonstrate the enlightened character of the legislation under which they are produced. In another column we refer to one important inquiry in which the Board has been engaged, but it would be quite within bounds to say that within the pages of the twenty-six volumes are included luminous discussions of nearly every topic of hygiene that is of interest to the municipal sanitarian. The present volume is of exceptional interest.

Practical Uranalysis and Urinary Diagnosis: A MANUAL FOR THE USE OF PHYSICIANS, SURGEONS, AND STUDENTS. By CHARLES W. PURDY, M.D., Queen's University; Fellow of the Royal College of Physicians and Surgeons, Kingston; Professor of Urology and Urinary Diagnosis at the Chicago Post-Graduate Medical School. Author of "Bright's Disease and Allied Affections of the Kidneys"; also of "Diabetes: Its Causes, Symptoms, and Treatment." Second revised edition. With numerous Illustrations, including Photo-Engravings and Colored Plates. In one crown octavo volume, 360 pages, in extra cloth, $2.50 net. Philadelphia: The F. A. Davis Co., Publishers, 1914 and 1916 Cherry Street. Chicago office, Lakeside Building.

In our notice of the first edition of this work (Nov. 24, 1894, p. 805) we said, "To the practitioner and as well to the clinician, this book must prove invaluble for the extent of information contained in its pages, and its practical character."

The author has "corrected all discovered errors" in the first edition, has revised it and has added several illustrations. The early call for a new edition is a tribute to its scientific accuracy, and we congratulate the author on the merited appreciation of the book by the profession.

Pregnancy, Labor and the Puerperal State. By EGBERT H. GRANDIN, M.D., Consulting surgeon to the New York Maternity Hospital; Consulting Gynecologist to the French Hospital, New York., etc.; and GEORGE W. JARMAN, M.D., Obstetric Surgeon to the New York Maternity Hospital; Gyecologist to the Cancer Hospital, New York, etc. Illustrated with forty-one original full-page photographic plates from nature. Royal octavo, pages viii, 261. Cloth, $2.50 net. Philadelphia: The F. A. Davis Co., Publishers, 1914 and 1916 Cherry Street. Chicago office, Lakeside Building.

This work, say the authors in the preface, aims at being a guide to practice and is clinical in its teaching. There are three parts, of which one is given to pregnancy, containing three chapters; the second to labor, containing four chapters; and the third, on the puerperal state, is disposed of in two chapters. The photographs are excellent and the text instructive. It is a faithful representation of the modern practice of obstetrics.

Ohio State Medical Society.—Transactions of the Semi-Centennial meeting held at Columbus, May 15, 16 and 17, 1895.

This volume shows that the society is keeping up to its usual high standard of work. There are valuable papers on diphtheria, influenza, autopsies, intestinal surgery, typhoid fever, leprosy, and these papers are discussed in an able manner. Appended is a copy of the Mosworth Bill to regulate the practice of medicine, which the society indorsed, and which has also received the indorsement of the Ohio State Eclectic Society and the Ohio State Homeopathic Medical Society. The whole profession is in support of this bill, and as there are eighty physicians in the House of Representatives, it is confidently expected the bill will become a law. The society is to be congratulated on its good work, its vigorous life at 50 years and its chances for the future.

Lectures on Appendicitis AND NOTES ON OTHER SUBJECTS. By ROBERT T. MORRIS, A.M., M.D. Illustrated. 8vo, cloth, pp. 163. New York and London: G. P. Putnam's Sons. 1895.

The first eighty-three pages of this book are given up to the lectures on appendicitis, and the remainder to notes on various surgical topics, mainly reports of interesting cases. They all show excellent surgery. The illustrations of the vermiform appendix in the first section of the work could not well be improved upon.

Announcements.

"The College and Clinical Record" will be hereafter known under the name of *Dunglison's College and Clinical Record*, a Monthly Record of Practical Medicine."

The *American Medical Review*, edited by Dr. Daniel Lewis and Dr. George B. Bradley, and published in New York, made its first appearance last week.

The *Medical News* of Philadelphia will be edited and published in New York after January 1, 1896.

PUBLIC HEALTH.

Typhoid Fever in Ohio.

OHIO STATE BOARD OF HEALTH. OFFICE OF THE SECRETARY.

COLUMBUS, OHIO, Dec. 21, 1895.

To the Editor:—Owing to absence your letter of the 17th just received. I returned from the smallpox district yesterday and am going back there again to-day. In Bridgeport and immediate vicinity there were up to yesterday morning twenty-eight cases. At Martin's Ferry, which is a separate corporation but practically the same community, there were forty-eight cases. There is one case at East Liverpool and one case at Lisbon. These two latter cases contracted the disease at Martin's Ferry. The disease was not introduced by emigrants, but is due to a negro having smallpox who was landed at Wheeling early last fall.

The disease was started in Wheeling and ran several months, but has been suppressed there. It crossed the river to Bridgeport and Martin's Ferry, which are in Ohio opposite Wheeling and connected by street car lines. Our Board has now put in force proper regulations for preventing further spread of the disease, and these are being strictly carried out. General vaccination is being carried out by house to house visitation by physicians. I confidently expect that the disease will soon be under control.

Yours truly, C. O. PROBST, Sec'y.

The New York City Board of Health.—The Board of Estimate of the City of New York has appropriated $519,508 for the Health Department's operations in 1896, which is an increase of $59,000 as compared with the current appropriation. This increase is, partly at least, believed to be rendered necessary by reason of the new and expensive work done by the Bacteriologic Bureau, in the production of anti-diphtheritic serum.

Typhoid in Wisconsin.—At a meeting of the State Board of Health of Wisconsin December 19, a statement was made that the number of cases of typhoid fever reported to the Board since July 1 throughout the State was 625, of which 133 were reported in Milwaukee, 115 in Superior, seventy-four in Shell Lake, fifty-two in Ashland and twenty-four in La Crosse. The causes of the prevalence of the fever were invariably due to the use of contaminated water. Plans were submitted for the proper filtration of Ashland's water supply, and a committee of the Board will go to that city to look into the matter.

Health Reports.—The following health reports have been received by the Supervising Surgeon-General Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Michigan: Dec. 7 to 14, Detroit, Park Township and Rochester, smallpox reported.
New Orleans, Dec. 7 to 14, 11 cases, 2 deaths.
Tennessee: Shelby County, Nov. 15 to Dec. 15, 15 cases; Memphis, Nov. 29 to Dec. 13, 13 cases; Ashport, Dec. 2, 1 case; Alamo, Dec. 2, 2 cases.

SMALLPOX—FOREIGN.

Rio de Janeiro, Nov. 9 to 16, 58 deaths; Nov. 16 to 23, 49 deaths.
Havana, Dec. 5 to 12, 1 death.
London, Dec. 1 to 7, 1 death.
Dublin, Dec. 1 to 7, 5 cases, 1 death.
Corunna, Oct. 1 to 31, 3 deaths; Nov. 1 to 30, 5 deaths.
Constantinople, Aug. 1 to 31, 14 deaths.
Madrid, Nov. 19 to Dec, 3, 12 deaths.
Odessa, Nov. 23 to 30, 3 cases, 2 deaths.
Pernambuco, Nov. 2 to 16, 108 cases, 28 deaths.
Prague, Nov. 23 to 30, 19 cases.
Rotterdam, Dec. 1 to 7, 1 death.

CHOLERA—FOREIGN.

India: Bombay, Nov. 12 to 19, 9 deaths; Calcutta, Nov. 2 to 9, 47 deaths.
Japan, to Nov. 14, 56,367 cases, 39,721 deaths.

YELLOW FEVER—FOREIGN.

Rio de Janeiro, Nov. 9 to 16, 7 deaths; Nov. 16 to 23, 18 deaths.
Havana, Dec. 5 to 12, 6 deaths.
Pernambuco, Nov. 2 to 16, 12 cases, 4 deaths.
Santiago de Cuba, Dec. 1 to 7, 20 deaths.

MISCELLANY.

It was the College of Pharmacy.—We printed last week a press dispatch in regard to a conference with the Board of Trustees of the University of Illinois, with five members of the Chicago College of Physicians and Surgeons. The item was in error. The conference was held by representatives of the Chicago College of Pharmacy.

The Mary Thompson Hospital of Chicago for Women and Children.—Dr. Marie J. Mergler, Professor of Gynecology and Clinical Gynecology, Northwestern University Woman's Medical School, has been appointed Gynecologist and Head Physician and Surgeon to fill the vacancy caused by the lamented death of Dr. Mary Harris Thompson. In memory of the valued services of the deceased physician the name of the hospital has been changed from "The Chicago Hospital for Women and Children" to the above. The hospital extends the privilege of bringing patients from all parts of the country and retaining the care of them, to physicians in good standing other than those of the medical staff. Dr. Mergler holds the position of gynecologist to the Wesley Hospital and the Post-Graduate School and is also surgeon to the Woman's Hospital of Chicago.

New Provision for Care of Oklahoma Insane.—Section 2,990, paragraph 1, chapter 42, of the Oklahoma Statutes authorizing the Governor of the Territory to contract with any Territory or State in the United States, or with the proper authorities thereof, for the care of persons who become insane within the Territory, and who are citizens thereof, such care to be had in the insane asylums of the Territory or State with which such contract may be made, has been amended so that it is now, in substance, as follows: The Governor is authorized and directed to enter into a contract with responsible individuals or private corporations, for the treatment, care and maintenance within the Teritorry, of of the Territory's insane, and of all persons who become insane within the Territory, and who are citizens thereof, for a term not to exceed three years from on or before June 15, 1895, and at a rate not to exceed $300 per annum for each patient; *Provided*, That the contract shall stipulate that the regulations prescribed by law of the States of Illinois or Kansas for the treatment of the insane, shall be those governing the contractors in the care and treatment of the insane, as far as the same can be made applicable; *Provided, also*, That burial expense and accounts for conveying discharged patients to their residence shall be a county charge. The Governor, it is also enacted in this connection, shall also have power under this act to contract for the deaf and dumb of the Territory, by parties within or without the Territory, in like manner as provided in this act for the care of the insane.

Tablets of Quinin Not Approved.—The conservative editor of the *Practitioner* offers a very original, not to say unpopular, notion that quinin be taken in effervescent solution. The writer seems to have had a better experience with pills than with tablets. He says, "It will frequently be found that if prescribed in a liquid effervescent form, quinin will agree

well with the stomach. As a prophylactic remedy, basic hydrochlorate of quinin is less irritating than the sulphate and more pleasant to take on account of the absence of the extremely bitter taste characteristic of the latter. The dose can be carefully regulated, and it contains a proportionately larger quantity of quinin than the sulphate. It is easily transported; and keeps perfect. Hydrobromate of quinin, it seems, ought to be employed particularly for the treatment of obstinate fevers, in which the hydrochlorate has failed to produce the desired effect. Quinin salts should not be put up in the form of tablets, as repeated examinations of samples from various sources have proved that they are either too brittle or completely insoluble. After having administered such tablets to rabbits, the investigators found them two hours later to be entirely unaffected by the gastric juice. Better results were obtained with gelatin capsules and medicinal pearls, which readily dissolved in slightly acid solutions or in the stomach of the rabbit. The advantage of these preparations is the ease of controlling their composition and their small size. Pills, contrarily to the prevailing opinion, gave the most prompt and invariable results, even when silver-coated pills, which had been kept upward of a year, were used. Pills of pearls, containing 15 centigrams of quinin hydrochlorate, may be administered for prophylactic purposes—two daily, in a little water."

No Public Money for Private Hospitals.—A hospital founded by a private benefactor is, in point of law, a private corporation, although dedicated by its charter to general charity. When the corporation is said at the bar to be public, it is not merely meant that the whole community may be the proper subjects of the bounty, but that the government have the sole right, as trustees of the public interests, to regulate, control and direct the corporation, its funds and its franchises, at their own good will and pleasure. These statements of the Supreme Court of Illinois in the case of the Washingtonian Home of Chicago v. City of Chicago, decided October 11, 1895, furnish the key to its holding that the Washingtonian Home, which was incorporated as an institution for the care, cure and reclamation of inebriates, with power to elect its own directors and adopt such by-laws as it thinks proper, but subject to no State, county or city control, is nothing more than a private corporation. The act under which this institution was incorporated provided that it should receive ten per cent. of all money paid for all licenses granted by the county or city for the right or privilege to sell spirituous, vinous or fermented liquors in the county or city, and it was to compel the city of Chicago to pay it $25,000 thereunder that this suit was brought. But conceding that this was a constitutional provision in 1867, the Supreme Court holds that it was rendered void by a clause in the State constitution of 1870 declaring that no county, city, town, etc., shall ever become subscriber to the capital stock of any railroad or private corporation, or make donation to or loan its credit to any such corporation. The fact that the city has for over twenty years made the payments after the adoption of the constitution, the court further holds, does not estop it from claiming the unconstitutionality of the act under which they are demanded.

Contracts Not to Practice Medicine.—It has come to be settled law that the mere sale of the goods, stock in trade and good will attached, without any express stipulation not to resume or engage in the business in that locality on the part of the seller, are not sufficient to warrant a court of equity in restraining the seller from again engaging in such business in the same locality. And in such case it is to be noted that the sale necessarily puts an end to the business of the seller, at least for the time being. But a sale by a physician of his residence, for example, need cause no interruption of his business, and therefore it would seem to be the conclusion of the Supreme Court of Indiana that in the latter case by so much the more will there be no interference to protect the purchaser aside from what he may be entitled to under an express contract. In the case of Beatty v. Coble, which that court decided Oct. 18, 1895, a practicing physician contracted, in consideration of the purchase of his property, to "retire from the practice of medicine and surgery" at the place named. The court holds that this contract must be construed or interpreted from the language employed therein, and from the circumstances surrounding the contracting parties, and thus get at their intention as expressed in the instrument. In this way its plain meaning and import is found to be that the selling party agreed not to engage in the practice in that field, without limitation as to time. His contention that a good-faith retirement for a year and a half was a sufficient compliance, the court does not agree with. It holds that the want of definite limit is no objection to the contract. And it is a contract which will be enforced by injunction. The adequacy of the consideration will not be inquired into. Nor is a want of consideration shown in the fact that, at the time of making the contract, the physician was not owner of the property sold, but it was the sole and separate property of his wife, which was built for and used as a residence, and not as a physician's office; and no part of the consideration for the conveyance thereof was ever received by him, and no consideration ever passed between the purchaser of the property and him for the execution of the agreement sued on. That, pending the appeal to the Supreme Court, he located in another town, the court also holds is no ground for dismissing the case, his practice reaching into portions of the county which constituted his former field of labor.

Declarations to Physician.—The declarations of a patient to his physician respecting his condition and symptoms at the time of seeking medical aid are admissible as evidence in his behalf, under a well-settled exception to the rule excluding "hearsay." The exception originally rested on the ground, first, that as the common law forbade parties testifying, the facts involved could not not be proved in any other way; and second, that the patient's interest in the physician's opinion precluded danger of falsehood. The modern practice of admitting parties as witnesses has removed the first of these grounds; but this is not considered a sufficient reason for excluding the testimony. To render it admissible, however, the plaintiff must establish the fact on which the exception rests—that is that the declarations were made when seeking medical aid. So says the United States Circuit Court of Appeals in the case of Del., L. & W. Ry. Co. v. Roalefs, decided Oct. 28, 1895. This was an action brought to recover compensation for personal injuries sustained in a railroad accident. The only contest was over the amount due. The plaintiff called as a witness a physician of great reputation as a medical expert, who had examined him professionally a year after the accident, when his condition was much improved, and asked him to state the former's declarations at the time respecting his condition and symptoms past and present, together with his own opinion based on these declarations and the personal observations made. This testimony the court holds should have been excluded because the inference was irresistible that the plaintiff did not call to consult the doctor with a view to medical aid, but to employ and qualify him as an expert to assist in maintaining the pending suit. Still the court holds that the doctor's opinion might have been taken hypothetically—based on his observations and the facts embraced in the plaintiff's statements. Whether the admissions of such opinion should follow or precede proof of the supposed facts would have been a matter of discretion; but until the facts were proved the opinion could not be considered, and if its admission preceded the proof it should have been ruled out if the proof did not follow. The opinion being inadmissible, nothing indicating how much it rested on the declarations and how much on personal observation, it must be accepted or rejected as a whole.

Practical Notes.

The Aluminum Corset.—Dr. Phelps, of New York City, recently addressed the Academy of Medicine on the merits of the various materials used in spinal disease. In lateral curvature, the jacket of aluminum was, so far as he had tested it, freer from objections than the others, but it was somewhat expensive, costing fifty dollars or more. A plaster corset was first made, the patient being suspended; this was filled with plaster, and over the latter the aluminum corset was hammered into shape. It had numerous perforations smaller than a dime. The weight of the apparatus is about two pounds. If the patient changed much in shape and size it would be necessary to make a new corset.

Bacteriologic Examination of Nine Cases of Diphtheria Treated with Antitoxin.—Stokes (*Boston Medical and Surgical Journal* CXXXII, No. 24) describes briefly the results of the bacteriologic examination of nine fatal uncomplicated cases of diphtheria treated with the antitoxin. The examination consisted in making slants upon blood serum from the lung, liver, spleen, kidney and the heart's blood. In five cases the streptococcus was found in the liver, spleen, kidney and heart's blood; in one case in kidney and heart's blood; in one case in the spleen. The pneumococcus was found twice in the kidney and in one of these the streptococcus was present in the spleen. In one case the only organism present was the bacillus coli communis. In the lungs of all these cases were found the bacillus diphtheriæ, streptococci, pneumococci, and staphylococcus pyogenes aureus, either alone or in various combinations. The bacillus diphtheriæ was found in the kidney in four cases, once in the heart and once in the spleen. The presence of these various organisms in addition to the bacillus of diphtheria enables one to understand the fatal issue in spite of the antitoxin administered, because this agent can not be assured to act against any other microörganism than the bacillus of diphtheria. Assuming, the efficacy of this remedy to be greater, the earlier it is administered, it can not be too greatly emphasized that its thorough, early introduction may lessen the dangers of a secondary infection because it places the system in a better condition to overcome the various ill effects of various complicating bacteria that may be present in the body.

Condyloma of the Trachea.—Dr. Harrison Griffin, of New York City, has reported in the *Medical Journal*, of that city, an instructive case of condylomata of the trachea. The patient, a female aged 40 years, sought medical relief on account of a dryness and irritation in her throat, with a tickling cough; occasional great difficulty of breathing, which increased at times without any assignable cause; patient's voice was weak and hoarse, the breath fetid, and the respiratory movements labored during both sleeping and waking hours. The slightest cold would develop a paroxysm of dyspnea. There was a history of pudendal chancre about eight years ago. An examination of her mouth, nose, and postnasal space was negative; an examination of her larynx showed the mucous membrane to be free from any congestion or ulceration.

A view of the trachea during the act of inspiration showed a large projecting and granular growth, red in color and covered with a pultaceous secretion; the growth was irregular on its surface and separated by fissures, their edges being abrupt and sharp.

The projecting mass was attached more to the anterior portion of the trachea and extended around two-thirds. It seemed to be situated only a short distance below the vocal cord and extended down on the trachea to the distance of about an inch. The lumen of the trachea was very much diminished. The examination by the laryngoscope was made with great difficulty owing to the patient being very nervous. The condition of the larynx and her unusual shortness of breath pointed to an immediate tracheotomy, but this was deferred as a last expedient. The patient was given large doses of potassium iodid (1 drachm four times a day), and unguentum hydragyri oxidi rubri was ordered to be rubbed in over the thyroid cartilage. The case was seen daily for three weeks when she was discharged with the parts completely healed, but warned her to continue medicine for a certain space of time.

An examination with the laryngoscope at this period showed but slight narrowing of the trachea at the point of the syphilitic affection. Her breathing was normal and the swelling of the neck subsided as she came under the influence of the iodid. She was now able to lie prone in bed and and all attacks of dyspnea subsided.

The rarity of these cases is indicated by the statement of Sir Morrell MacKenzie, that he had met with three cases only among 1,145 cases of syphilis of the region of the larynx and pharynx.

Detroit Notes.

PAPER ON CROUPOUS PNEUMONIA.—The Detroit Medical and Library Association at its regular meeting, December 16, listened to an instructive paper by Dr. D. S. Campbell on "Croupous Pneumonia." The Doctor said; "My paper is on the present management and treatment of croupous pneumonia, based on the fact that it is a specific or constitutional disease, similar to that of typhoid fever, etc., that it will run a natural course and can not be abated by any mechanical or therapeutic measure; also that the ever constant symptom of greatest importance is the excessive temperature which is independent of the local manifestations in the lung. About 80 per cent. of croupous pneumonia cases do not require anything but good nursing and care, but that the remaining 20 per cent.—those who are attacked with it very seriously and from the out-set with perhaps several rigors, denoting its approaching malignant type and impending excessive fever—require active measures toward holding this latter symptom in abeyance, which if continued for a day or two, would tend to produce cardiac insufficiency, the other organ which is most dependent on its effection. The treatment for this is laid down from actual experience, and was best carried out by the use of cold applications, or the bath commencing at 90 degrees, gradually reduced to about 65, the patient to remain in it from thirty to forty minutes as the case demanded, and if any reaction resulted they were given freely whisky or brandy in modern doses; but from my experience the excessive fever should be reduced from one-half to two and one-half degrees. If pain was present in the onset I employed hypodermic injections of morphia with atropia in their usual doses, and chloral hydrate if the patient required it from want of sleep or restlessness."

Dr. Christian F. Kapp's suit against George Hermindinger as noted in the last number of the JOURNAL, in which the Doctor sought to recover $15,000, for making 372 calls and furnishing the medicine upon smallpox cases, Mr. and Mrs. Hermindinger with their children being the patients, resulted in a verdict for the Doctor for $400. One practicing physician in testifying said $2 was enough for visiting a smallpox patient. This suit was tried by a Washtenaw County jury in Ann Arbor. Health office report for week ending Dec. 21, 1895: Deaths under 5 years, 22; total 85; births, male 41, female 49; total 90. Contagious diseases: Diphtheria: Last report 40, new cases 36, recovered 36, died 7, now sick 33. Scarlet fever: Last report 25, new cases 3, recovered 6, died 1, now sick 21. Smallpox: Last report 3, new cases none, recovered none, died none, now sick 3.

St. Louis Notes.

REPORTS OF THE HEALTH OFFICE.—For the week ending December 14, the total number of deaths from all causes was 170 as compared with 159 for the preceding week, and 154 for the corresponding period of 1894. Births reported, 204. Report for the week ending December 21: Total number of deaths from all causes, 167; in corresponding period of 1894, 145. Contagious diseases reported during the week ending December 14: Diphtheria, 111 cases, 9 deaths; croup, 14 cases, 8 deaths; whooping cough, 4 cases, one death; measles, 9 cases; typhoid fever, 6 cases; scarlatina, 7 cases. During the week ending Decemper 21,: Diphtheria, 87 cases, 10 deaths; croup, 14 cases, 5 deaths; typhoid fever, 14 cases, 1 death; whooping cough, 1 case; scarlatina, 16 cases.

ST. LOUIS MEDICAL SOCIETY.—The meeting December 14 was the occasion of a change of program and an extension of courtesy to Dr. B. Sachs, of New York, who read a paper on "Syphilis of the Spinal Cord." The meeting on December 21 was notable as the occasion of the presentation to the society, by Dr. Warren B. Outten, of a portrait in oil of the late Dr. Charles A. Pope. The portrait is the product of Dr. Outten's artistic talent and was presented by him in a very happy speech. One of the Nestors of the society, Dr. William M. McPheeters, responded on behalf of the society in a speech of acceptance. Dr. Pope was well known as the first Dean of the St. Louis Medical College, and his life and work exercised a marked influence upon the medical thought and practice of St. Louis, and more widely through numerous students.

Reminiscences of his life were related during the evening by Dr. Pollak and others of his immediate contemporaries.

THE CLINICO-PATHOLOGICAL SOCIETY.—This society was organized in November with an initial membership of twenty. The executive board is constituted by Drs. James A. Close, Hugo Summa, H. J. Cummings, A. F. Bock, and C. G. Chaddock, Secretary. The meetings are held on the second and fourth Mondays of each month. At the meeting December 9, Dr. B. M. Hypes read an important paper on "The Use of Intra-Uterine Injections of Glycerin for the Induction of Labor." The paper and discussions overwhelmingly condemned the use of glycerin for such a purpose because of the unavoidable dangers attending it. The paper was based on a fatality following the injection of glycerin, and written anent favorable reports of its utility that have recently appeared in literature. The remainder of the evening was devoted to the discussion of pathologic specimens and cases, in particular the case of a death in chloroform narcosis presented by Dr. Summa, where the kidneys were found to be in an advanced stage of cirrhosis. The question raised for discussion was what should be the criterion of contra-indication for the use of chloroform in such cases. It was pointed out that not the simpler urinary indications should be the guide, but rather the indications to be gained from an exact quantitative estimate of the excretion of urea. The program announced for the meeting December 23, includes a paper on "The General Medical Relations of Uranalysis," by Dr. Hugo Summa, and "A Case of Cerebral Tumor, with Specimen," to be discussed in its diagnostic and surgical relations, by Dr. C. G. Chaddock. The program for the first meeting in January includes a paper by Dr. J. A. Close entitled "What Amount of Work in Bacteriology should the General Practitioner be able to Perform?"

Louisville Notes.

PETITION.—The women of the State are circulating a petition among themselves which they will present Governor Bradley, requesting that he appoint only married men as resident physicians at the various insane asylums in the State. It is an assured fact that the governor will not countenance any such reflection on the prominent physicians of the State whose names have been mentioned in connection with the appointments.

IRREGULAR PRACTITIONERS.—Dr. J. N. McCormack, Secretary of the State Board of Health, has issued a circular letter, under date of Dec. 16, to all county medical referees, calling their attention to the fact that a number of so-called "doctors" from the advertising "medical companies" of Indianapolis, Cincinnati and Chicago, are plying their trade in the outlying districts of the State. They accept fees, in negotiable notes, payable at some point outside of the State. These are promptly discounted, and in this way thousands of dollars have been extorted from families who can the least afford such a loss. One conviction has been obtained in Grant County, and warrants are out for others. The referees are admonished to be on the lookout for them and to report to Dr. McCormack.

ACADEMY OF MEDICINE.—At the regular meeting of the Academy on Monday evening Dec. 16, Dr. I. N. Bloom read the paper, on "An Historic Sketch of the Etiology of Chancroids." The Academy voted to give up their present quarters in the Fonda Block, and will move to the Louisville College of Pharmacy building, corner First and Chestnut Streets, where they will be at very much less expense.

DEAF MUTES.—Superintendent J. E. Ray of the Kentucky Institution for the Education of Deaf Mutes, located in Danville, Ky., has just made his report to the governor, extending over a period of two years. It shows that for the year ending Oct. 31, 1894, the expenditures for all purposes amounted to $41,709.55, or a per capita expense of only $164. For the year ending Oct. 31, 1895, with 335 pupils enrolled, against an enrollment of 225 the previous year, the expenditures aggregated $49,267.29, or a per capita expense of less than $147. This is a most successful work.

SURGEON-GENERAL.—Dr. J. F. Kimbly, of Owensboro, has been appointed Surgeon-General of the State Guard with rank of colonel. Dr. Kimbly is a prominent republican and made the race for Congress in 1892, being defeated by W. T. Ellis.

RUBEY.—William Rubey, who has been illegally practicing medicine in this city, was arrested at the instance of the State Board of Health, tried in the City Court and fined $100, having been previously convicted and fined in the Boyle County Court for the same offense. The testimony of the two witnesses showed that Rubey claimed to cure by the "laying on of hands" and administering a "kidney tonic," receiving in the case of one witness compensation therefor.

HEALTH ORDINANCES.—The upper Board of the Common Council has passed the health ordinances drawn up and presented by the health officer, Dr. White, and await now the signature of the Mayor. These are very comprehensive laws and provide for the notification of the health office of contagious diseases and the proper placarding of houses in which the cases are; the control of funerals of those dead from contagious diseases; the care of smallpox cases; the vaccination of school children and all persons exposed to smallpox; and the abatement of sanitary nuisances. There has been a general cut of all city officials' salaries, and Dr. White's has been reduced to $1,800 from $2,000, and his clerk has been removed. This is greatly to be regretted, as the added work on account of the recently passed ordinances makes a clerk indispensable to the proper conduct of the health department.

LICENSE.—It is greatly to be regretted that the excellent work of the new Common Council recently elected in reducing the city expenses should be marred in its efforts to obtain revenue, by adding an additional sum to the license required of practicing physicians. The license required at present is $10 per year, and it was recently raised to $15.

DEATHS.—The weekly death report shows a total of sixty-one deaths, forty-five white, sixteen colored. Pneumonia caused four deaths, consumption six, typhoid fever four and diphtheria three.

Washington Notes.

WEEKLY REPORT OF THE HEALTH OFFICER.—The report of the Health Officer for the week ending Nov. 30 is as follows: Number of deaths (still-births not included): White, 66; colored, 44; total, 100. Death rate per 1,000 per annum: White, 18.3; colored, 23.8; total, 23.8. Death rate per 1,000 per annum corresponding week last year, 14.2 The deaths reported at the Health Department during the past week numbered 110. The mortality for the week previous was 86. The increase is mainly due to brain, lung and kidney diseases, the deaths from the latter malady numbering 10, and those from lung troubles reaching 27. Nearly one-fourth of all the persons who died were under 5 years of age. Forty of the decedents were over fifty years old. There were 6 deaths imputed to typhoid fever, 3 were from diphtheria and 1 from scarlet fever. The deaths from violence numbered 5, of which 2 were suicides. Hospitals reported 21 and the coroner 10 deaths. Marriages reported were 41, and births returned were 107 and still births 14.

OFFICERS OF THE FOUNDLINGS' HOSPITAL.—At a meeting of the Board of Directors of the Washington Hospital for Foundlings held December 16, the following were chosen as officers of the Board of Lady Visitors: Mrs. W. P. Kellogg, President; Mrs. S. W. Cullom, Mrs. M. C. Stone, Mrs. Charles G. Dulin, Mrs. F. E. Warren and Mrs. J. N. Whitney, Vice-Presidents, and Mrs. C. B. Beall Secretary.

DENTAL SOCIETY ELECTS OFFICERS.—At the twenty-ninth annual banquet of the Washington City Dental Society, held December 19, Dr. A. W. Sweeney read the annual address and Dr. L. C. F. Hugo officialed as toastmaster. Officers for the ensuing year were elected as follows: Dr. William M. Hunt, President; Dr. D. E. Wilbur, Vice-President: Dr. W. N. Cogan, Secretary; Dr. M. F. Finley, Treasurer; Dr. N. H. B. Noble, Librarian, and Dr. Garnett L. Hills, Essayist.

HOSPITAL DIRECTORS APPOINTED.—The Commissioners have appointed as Directors of the Columbia Hospital and Lying-in Asylum, to fill two vacancies, Surgeon-General George M. Sternberg, U. S. A., and John B. Wright, Secretary of the Board of Trade. Formerly the Directors filled all vacancies occurring in the Board, but Congress recently amended the charter of the hospital requiring the Commissioners of the District to fill all vacancies.

PHYSICIAN TO THE POOR APPOINTED.—Dr. A. T. Mitchell has been appointed physician to the poor, vice Dr. J. C. Meredith, whose term has expired. The Commissioners have accepted the resignation of Dr. V. B. Jackson, resident physician at the Washington Asylum Hospital, and appointed Dr. T. B. McDonald to fill the vacancy. Dr. McDonald was first assistant resident physician to the Emergency Hospital and resigned to accept the late appointment.

CENTRAL DISPENSARY AND EMERGENCY HOSPITAL.—The competitive examinations held December 20 at the hospital, resulted in the selection of the following named physicians: Dr. B. F. McGrath, President; Dr. Max Peralto, First Assistant, and Dr. William E. West, Second Assistant. They enter upon their respective duties on January 1.

PHYSICIANS SHALL NOT DISCLOSE CONFIDENTIAL COMMUNICATIONS—Mr. Morrill has introduced a bill in the Senate providing that in the courts of the District of Columbia no surgeon shall be permitted, without the consent of the person afflicted, to disclose any information which he shall have acquired in attending a patient in a professional capacity, and which was necessary to enable him to act in that capacity, whether such information shall have been obtained from the patient or his family, or from the person or persons in charge of him; provided that this act shall not apply to evidence in criminal cases where the accused is charged with causing the death, or inflicting injuries upon a human being, and the disclosure shall be required in the interest of public justice.

RECOMMENDATION OF THE DISTRICT GRAND JURY.—The Grand Jury has rendered a report on the prevalence of typhoid fever in the District. "Although the conclusions set forth were reached two months ago, pressure of other business justified delay until now," says the report. "It is useless to obscure facts. Each successive year in the past twelve has practically added to the per capita number of typhoid cases in this District. Statistics which are facts show the proportion greater than the situation and climatic conditions seem to warrant. Our belief, based on scientific examination, is that Potomac water for drinking purposes at the present time is conducive to the germination of typhoid fever."

A system of sedimentation and filtration is primarily necessary, the grand jury thinks; also that the water supply should be increased; that as opportunity offers all pumps and wells should be closed, and that box privies be discontinued by law.

"All improved premises abutting on public sewers and water mains," continues this report, "should be connected with such sewers and water mains, and their occupancy unless so connected prohibited by law."

DR. BUSEY'S PRESIDENTIAL ADDRESS.—At the meeting of the Society held on December 18, Dr. Samuel C. Busey read his presidential address for 1895, entitled "Compulsory Reports of Zymotic Diseases; Milk Legislation; Medical Practice Laws and Society Publication of Its Transactions." Seldom, if ever before, has this Society listened to so scientific and practical an array of facts and suggestions. The Society tendered him a vote of thanks and ordered one thousand copies of the address printed for distribution. The annual meeting for the election of officers will take place January 6, 1896, and the general sentiment is for his re-election.

WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.—The 237th meeting of the Society was held December 20. Dr. S. S. Adams reported a case of typhoid fever in a child 3 years of age; Dr. Deale reported a case in which there was a large quantity of H_2S in the urine.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from December 14, 1895, to December 20, 1895.

Capt. Guy L. Edie, Asst. Surgeon, is granted leave of absence for four months.

Marine-Hospital Changes. Official list of changes of station, and duties of Medical Officers of the U. S. Marine-Hospital Service, for the fifteen days ended December 15, 1895.

Surgeon G. W. Stoner, granted leave of absence for thirty days, Dec. 6, 1895.

P. A. Surgeon A. H. Glennan, granted leave of absence for ten days, Dec. 5, 1895.

P. A. Surgeon W. J. Pettus, to assume temporary command of Service at Norfolk, Va., in addition to present duties, during absence of Surgeon H. R. Carter, Dec. 13, 1895.

P. A. Surgeon J. Kinyoun, granted leave of absence for twenty-three days, Dec. 12, 1895.

P. A. Surgeon J. O. Cobb, granted leave of absence for two days, Dec. 5, 1895.

Asst. Surgeon Rupert Blue, granted leave of absence for eighteen days, Dec. 3, 1895. Detailed to make physical examination of immigrants at San Francisco, Cal., Dec. 13, 1895.

Marine-Hospital Service Examinations.

There will be held at Washington, D. C., on Feb. 10, 1896, a competitive examination of candidates for appointment to the position of Assistant Surgeon in the United States Marine-Hospital Service. Candidates are required to be not less than 21 years of age, and no appointment is made of any candidate over 30 years of age. They must be graduates of a reputable medical college and furnish testimonials as to character.

Successful candidates, having made the required grade, are appointed in order of merit as vacancies arise during the succeeding year. There is at present one vacancy.

A successful candidate when recommended for appointment, is commissioned by the President of the United States as an Assistant Surgeon. After four years of service, and a second examination, he is entitled to promotion to the grade of Passed Assistant Surgeon and to the rank of Surgeon, according to priority, on the occurrence of vacancies in that grade.

The salary of an Assistant Surgeon is $1,600 per annum, together with furnished quarters, light and fuel; that of a Passed Assistant Surgeo. $1,800, and that of Surgeon $2,500 per annum. In addition to the above salaries, after five years' service, an additional compensation of 10 per cent. of the annual salary for each five years of service is allowed medical officers above the rank of Assistant Surgeon; the maximum rate, however, not to exceed 40 per cent. When an officer is on duty at a station where there are no quarters furnished by the government, compensation for quarters is allowed at the rate of $30 per month for an Assistant Surgeon, $40 for a Passed Assistant Surgeon, and $50 for a Surgeon. The successful candidates after receiving appointments, are usually ordered to one of the larger stations for training in their duties. Full information may be obtained by addressing the Surgeon-General of the Marine-Hospital Service, Washington, D. C.

Change of Address.

Bellamy, B. C., from Covelo to 1927 S. San Joaquin Street, Stockton, Cal.

Carnes, U. Maurice, from Canton to 276 Euclid Avenue, Cleveland, Ohio.

Isbester, R. T., from 582 Madison Street to 636 Washington Boulevard, Chicago, Ill.

Nance, W. O., from Berlin, Germany, to care Brown Shipley Co., Founders Court, E. C., London, Eng.

Pring, Ernest, from 1631 Devisadero Street, to 3068 Fillmore Street, San Francisco, Cal.

LETTERS RECEIVED.

Alma Sanitarium Co., Alma, Mich.; Allison, W. R., Peoria, Ill.; Ayer, N. W. & Son, Philadelphia, Pa.; Antikamnia Chem. Co., The, St Louis, Mo.

Bacon, A. L., Aurora, Ill.; Britten, A. L., Athens, Ill.; Boynton, C. E., Buena Vista, Ore.; Bellamy, B. C., Stockton, Cal.; Braymer, O. W., Camden, N. J.; Bratton, W. D., Albuquerque, N. M.; Barr, Martin W., Elwyn, Pa.

Cantrell, G. M. D., Little Rock, Ark.; Carnes, U. M., Cleveland, Ohio; Cone, Andrew, New York, N. Y.; Criley, B. H., Dallas Center, Iowa; Cummings, H. J., St. Louis, Mo.; Cornish, A., Rome, N. Y.

Dental Digest, Chicago, Ill.; Dufour, Clarence R., Washington, D. C.

Givan, G. C. G., Harriman, Tenn.

Hamilton, E. E., Wichita, Kan.; Hummel, A. L., (3) Advertising Agency, New York, N. Y.; Heasby & Mattison, Ambler, Penn.; Holmes, Bayard, Chicago.

Imperial Granum Co., New Haven, Conn.

Jordan, Edwin O., Chicago.

Kenyon News & Postal Subscription Co., Chicago, Ill.; Kyte, A. E., Errol, N. H.; King, A. F. A., Washington, D. C.; Kelster, Bittle C., South Boston, Va.

Longmans, Green & Co., New York, N. Y.; Lord & Thomas, Chicago, Ill.; Lukens, Anna, New York, N. Y.; Longenecker, J. M., Chicago.

McBride, M. A., Leesville, Tex.; Maltine Mf'g. Co., The, New York City; Macey, Fred Co., The, Grand Rapids, Mich.

Nelson, T. H., Broadwell, Ky.; New York Post-Graduate Medical School, New York City.

Parke, Davis & Co., (2) Detroit, Mich.; Pardee, G. C., San Francisco.

Schimmel, M. S., Baltimore, Md.; Stoffiet, F., Ann Arbor, Mich.; Schering & Glatz, New York, N. Y.; Soller, C. H., Evanston, Wyo.; Shlensky, I., Philadelphia, Pa.; Shepard, Chas. H., Brooklyn, N. Y.; Saunders, W. B., Philadelphia, Pa; Seibert, W. H., Steelton, Pa.

Tyree, J. S., Washington, D. C.; Turck, F. B., Chicago.

Wiley, Z. K., Baltimore, Md.; Weaver, Geo. H., Chicago.